A Mosquito Taxonomic Glossary

XI. The Larval Maxilla*

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For a full explanation of this project see Part I (Knight 1970). As before, terms recommended for standardized use are given fully capitalized; synonyms or terms used in error are in lower case and underlined; standardized abbreviations are suggested; and an appendix presenting supplementary information is included.

Readers are reminded that this is a preliminary presentation and that when all parts are completed, they will be thoroughly revised and issued under a single cover. Because of this, individuals interested in mosquito systematics are encouraged to comment on any portion of the included text with which they take exception.

Part X of this series was the first of a sequence dealing with the larval mouthparts (Harbach and Knight 1977). As previously, the illustrations were drawn from specimens observed with the light and scanning electron microscopes. Specifically, blown-up areas were drawn with the aid of scanning electron micrographs.

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ampulla. -- See MAXILLARY PALPAL SENSORIUM 3, MAXILLARY PALPAL SENSORIUM 4, and MAXILLARY PALPAL SENSORIUM 3 + 4.

apical brush of hairs. -- See MAXILLARY BRUSH.

apical soft papillae. -- See MAXILLARY PALPAL SENSORIUM.

apical teeth. -- See MAXILLARY PALPAL SENSORIUM.

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appendages. -- See MAXILLARY PALPAL SENSORIUM.

arculus. -- See STIPITAL ARM.

articular bar. -- See CARDO and PARACOILA.

articular rod ("Gelenkstab" GSt_1). -- See CARDO.

articular rod ("Gelenkstab GSt_2). -- See PARACOILA.

articulation of lobe and palp of mandibula. -- See maxillary articulation.

barb. -- See appendix.

barbed hairs. -- Used by Gardner *et al.* (1973, 169) to designate a medial group of maxillary brush setae in *Aedes communis* De Geer which are blunt-tipped and set with tiny serrations distally. (Syn. based on location: spinulated hairs, Shalaby 1957a, 157; branch-tipped simple hair, Pao and Knight 1970, 128.) See SETA in appendix for comment. Also see MAXILLARY BRUSH SETA and the synonyms listed above.

basal appendage. -- See MAXILLARY PALPUS.

basal arm of the cardo. -- See CARDO.

basal maxillary hair. -- See SETA 18-C.

BASAL NOTCH (BN). -- In some culicine larvae (Gardner *et al.* 1973, 167), a small gap or slit between the galeastipital stem and the laciniastipes on the ventrobasal margin of the maxilla. See appendix entry, MAXILLA.

basal pectinate hair. -- Used by Pao and Knight (1970, 128) to designate one of a class of maxillary brush setae located ventrally at the base of the maxillary brush in *Aedes vexans* (Meigen); having long branches which arise primarily on the lateral margins of the setae. (Syn. based on location: pectinate hairs, Shalaby 1957b, 278.) See SETA in appendix for comment. Also see MAXILLARY BRUSH SETA and the synonym listed above.

basal piece. -- See HYPOSTOMAL SCLERITE.

basal process. -- See MAXILLARY PALPUS.

black pedicle. -- See STIPITAL ARM.

blades. -- See MAXILLARY PALPAL SENSORIUM 3, MAXILLARY PALPAL SENSORIUM 4, MAXILLARY PAPAL SENSORIUM 3 + 4, and MAXILLARY PALPAL SENSORIUM 5.

blunt spines. -- See MAXILLARY PALPAL SENSORIUM.

branched bristle. -- See SETA 7-MP.

branched hairs. -- Used by Gardner *et al.* (1973, 168) to refer to the proximal setae of laciniarastrum 1 in *Aedes communis* De Geer which bear several apical to subapical branches. (Syn.: pectinate spines, Shalaby 1957a, 157; branched spines, Pao and Knight 1970, 128.) See SETA in appendix for comment. Also see LACINIARASTRUM 1 and the synonyms listed above.

branched spines. -- Used by Pao and Knight (1970, 128) to refer to the proximal setae of laciniarastrum 1 of *Aedes vexans* (Meigen) which are branched apically. (Syn.: pectinate spines, Shalaby 1957a, 157; branched hairs, Gardner *et al.* 1973, 168.) See SETA in appendix for comment. Also see LACINIARASTRUM 1 and the synonyms listed above.

branch of the pedicle. -- See DORSAL MAXILLARY SUTURE.

branch-tipped simple hair. -- Used by Pao and Knight (1970, 128) to designate one of a medially located class of maxillary brush setae in *Aedes vexans* (Meigen) which have serrated tips. (Syn. based on location: spinulated hairs, Shalaby 1957a, 157; barbed hairs, Gardner *et al.* 1973, 169.) See SETA in appendix for comment. Also see MAXILLARY BRUSH SETA and the synonyms listed above.

brushes bearing long setae. -- See MAXILLARY BRUSH.

brush of dististipes. -- See MAXILLARY BRUSH.

brush of hairs. -- See MAXILLARY BRUSH.

brush of long hairs. -- See MAXILLARY BRUSH.

brush of simple hairs. -- See MAXILLARY BRUSH.

brush-tipped hairs. -- Used by Gardner *et al.* (1973, 169) to designate a class of dorsally located maxillary brush setae in *Aedes communis* De Geer which have branched tips. (Syn. based on location: simple hairs, Shalaby 1957a, 157; pointed-tipped simple hair, Pao and Knight 1970, in part, 128.) See SETA in appendix for comment. Also see MAXILLARY BRUSH SETA and the synonyms listed above.

cardo. -- See HYPOSTOMAL SCLERITE and MAXILLARY BODY.

CARDO (Cd). -- In anopheline and dixid larvae, a small rod of heavily sclerotized cuticle located between and articulating with the paracoila and the stipital arm of the maxillary body mesoventrally; the stipital adductor muscle is inserted on it in anophelines. (Syn.: first ossicle, Crawford 1933, 27; lever, Becker 1938, 756; sclerotized arm, Farnsworth 1947, 143; sclerotized arm of the maxilla, Farnsworth 1947, 143; articular rod ("Gelenkstab" GSt_1), Schremmer 1949, 196; maxillary articular rod, Schremmer 1950, 400; entoparartis, Shalaby 1956, 154 and in Figs. 18-20, 155; rod of the cardo, Menees 1958, 28; condyle of the cardo, Menees 1958, 28; rod of cardo, Menees 1958, 30; basal arm of the cardo, Menees 1958, 30; articular bar, Clements 1963, in Fig. 17d, 34.) See appendix entry, MAXILLA.

cardo-basistipes. -- See HYPOSTOMAL SCLERITE.

cardogalea. -- See GALEASTIPES.

cardolacinia. -- See LACINIASTIPES.

cardolacinial line. -- Pao and Knight (1970, 128) contrived this term and applied it unnecessarily to a line formed by the bases of the setae of laciniarastrum 2.

cardolacinial mat. -- See LACINIARASTRA.

cardostipes. -- See GALEASTIPES and MAXILLARY BODY.

CARDOSTIPITAL ARM (CAr). -- In culicine and toxorhynchitine larvae, the apodematous ridge located mesally at the base of the maxillary body, or the laciniastipes when distinguishable; usually providing attachment for the stipital adductor muscle; continuous with the dorsal maxillary suture; and bearing the parartis ventrally. This structure probably represents the fused cardo and stipital arm present in anophelines and dixids. (Syn.: sclerotized rod-like structure, Cook 1944, 44.) The entoparartis of Shalaby (1957a, 157 and his later works) probably included most of the cardostipital arm as well as the parartis. See appendix entry, MAXILLA.

central large part. -- See MAXILLARY BODY.

chitinous ridge. -- See DORSAL MAXILLARY SUTURE.

cleft. -- See GALEASTIPITAL FISSURE.

cluster of longer ones [hairs]. -- See SETA 7-MP.

cluster of short hairs. -- See MAXILLARY BRUSH.

coating of long, soft hairs. -- See LACINIARASTRUM 2 and LACINIARASTRUM 3.

comb of the mandibular lobe. -- See MAXILLARY BRUSH.

combs of shorter ones [setae]. -- See MAXILLARY BRUSH.

condyle of the cardo. -- See CARDO.

cone. -- See MAXILLARY PALPAL SENSORIUM 7.

cone-shaped appendage. -- See MAXILLARY PALPAL SENSORIUM 7.

digit-like prolongations. -- See MAXILLARY PALPAL SENSORIUM.

dististipes. -- See GALEASTIPES.

dististipes plus the lacinia. -- See MAXILLARY BODY.

dorsal articulatory point. -- See PRIMARY MAXILLARY ARTICULATION.

dorsal maxillary seta. -- See GALEAL SENSORIUM.

DORSAL MAXILLARY SUTURE (DMxS). -- In most culicid larvae, the variably developed seam occurring on the dorsal surface of the maxillary body; extending from the maxillary brush to the base of the maxillary body where it is continuous with the stipital or cardostipital arm; serving as a boundary between the laciniastipes and galeastipes. (Syn.: suture, Raschke 1887, 10; strip of chitin, Mitchell 1906, 15; longitudinal suture, Howard *et al.* 1912, 86; chitinous ridge, Salen 1931, 401; branch of the pedicle, Crawford 1933, 28; thickened ridge, Christophers 1960, 206; suture on the oral side, Pucat 1965, 56; maxillary suture, Gardner *et al.* 1973, 167.) See appendix entry, MAXILLA.

double bristle. -- See SETA 18-C.

double spines. -- See GALEAL SENSORIUM.

entoparartis. -- See CARDO, CARDOSTIPITAL ARM, and GALEASTIPITAL STEM.

exoparartis. -- In some insects, an arm of the parartis, a "swelling located at the proximal end of the subcardo or cardo...," which "articulates on the external surface of the paracoila..." (MacGillivray 1923, 98). In culicid larvae, misapplied by Shalaby (1956, 154; 1957a-c; 1958, 1959) and Pao and Knight (1970, 130) to a point at the base of the maxillary palpus which articulates with the merostipital process (their "maxillary apodeme") when the latter is present. (Syn.: short sclerotized rod, Shalaby 1956, 153.) See MEROSTIPITAL PROCESS.

external lobe. -- See GALEASTIPES.

fan shaped cluster of setae. -- See MAXILLARY BRUSH.

fine branched hairs. -- See MAXILLARY PILOSE AREA.

finger. -- See MAXILLARY PALPAL SENSORIUM 6.

finger-shaped appendages. -- See MAXILLARY PALPAL SENSORIUM 1, MAXILLARY PALPAL SENSORIUM 2, MAXILLARY PALPAL SENSORIUM 6, and MAXILLARY PALPAL SENSORIUM 7.

first ossicle. -- See CARDO.

first segment of maxillary palp. -- See HYPOSTOMAL SCLERITE.

first sensorium. -- See MAXILLARY PALPAL SENSORIUM 1.

fissure. -- See GALEASTIPITAL FISSURE.

flat hairs. -- See LACINIARASTRUM 1.

fourth sensorium. -- See MAXILLARY PALPAL SENSORIUM 6.

fringe of leaflike acicular structures. -- See MAXILLARY BRUSH.

fulcral lever. -- See PARACOILA.

fused cardo and basistipes. -- See HYPOSTOMAL SCLERITE.

galea. -- See GALEASTIPES and MAXILLARY BODY.

GALEAL SENSORIUM (GS). -- In culicid and dixid larvae, one of usually two innervated, often pedicel-borne, peg-like cuticular structures arising on the maxillary body, or the galeastipes when distinguishable; usually located near the dorsal maxillary suture but sometimes borne apically (extremely so in *Uranotaenia* larvae). (Syn.: spines, Mitchell 1906, 15; double spines, Mitchell 1906, 16; pair of finger-shaped papillae, Puri 1931, 27; stout bristles, Salem 1931, 401; membranous appendages, Shalaby 1957a, 157; papilliform membranous appendages, Shalaby 1957b, 278; maxillary spurs, Pao and Knight 1970, 130; dorsal maxillary setae, Gardner *et al.* 1973, 168.) See appendix entries, GALEAL SENSORIUM and SENSORIUM.

GALEASTIPES (GSt). -- Recognizable in many culicid larvae, mostly culicines, as the lateral half of the maxillary body; representing the fused stipes and galea which can be partially distinguished only in dixids and anophelines; usually bearing the maxillary brush, galeal sensoria, and MP setae 4, 5, and 6. The maxillary palpus is articulated laterally at its base; the ventral and dorsal maxillary sutures, when present, separate the galeastipes and laciniastipes. (Syn.: external lobe, Meinert 1886, 490; inner surface, Schremmer 1949, in part, 198; galea, Shalaby 1957a, 156; dististipes, Pucat 1965, 57: cardogalea, Pao and Knight 1970, 128; cardostipes, Gardner *et al.* 1973, 168.) See appendix entry, MAXILLA.

GALEASTIPITAL FISSURE (GSF). -- In most anopheline and dixid larvae, a strip or wedge of cuticle appearing as a narrow opening or crack in the light microscope which at least partially separates the merostipes and galea ventrally. (Syn.: fissure, Crawford 1933, 27; cleft, Shalaby 1956, 153.) See appendix entry, MAXILLA.

GALEASTIPITAL STEM (GSS). -- In some culicine larvae, a slender mesoventral extension of the galeastipes; usually separated from the laciniastipes basally by the basal notch; sometimes more directly articulated with the paracoila than the true parartis and/or often narrowly fused to the hypostomal ridge. In some species where the stem is undeveloped, this area of the galeastipes is contiguous with the parartis and articulates with the paracoila (e.g., in *Eretmapodites*). (Syn.: entoparartis, Pao and Knight 1970, 130 and Gardner *et al.* 1973, 167 but not that in the works of Shalaby.) See appendix entry, MAXILLA.

great number of hairs. -- See LACINIARASTRA.

hairy area. -- See LACINIARASTRA.

hooked hairs. -- See MAXILLARY BRUSH SETA.

hooked hairs at edge of maxilla. -- See MAXILLARY BRUSH.

hooked setae. -- See MAXILLARY BRUSH SETA.

HYPOSTOMAL SCLERITE (HSc). -- In dixid, anopheline, and many culicine larvae, a small sclerite located between the base of the maxillary palpus and the hypostomal ridge; bearing seta 18-C. It may be only partially separated from the hypostomal ridge (e.g., in *Opifex* and *Aedes* larvae) or fused to the base of the maxillary palpus (e.g., in some *Tripteroides* larvae). (Syn.: three-sided chitinous plate, Meinert 1886, 377; basal piece, Puri 1931, 27; Stipes, Puri 1931, 27; stipes, Becker 1938, 755; palpifer, Cook 1944, 43; maxillary palpifer, Cook 1944, 57; triangular sclerite, Cook 1949, 8; ventral sclerite of the maxilla, Foote 1952, 461; maxillary apodeme, Shalaby 1956, 153; pigmented and sclerotized apodeme, Shalaby 1958, 445; small sclerite, Snodgrass 1959, 18; sclerite at base of palpus, Snodgrass 1959, 18; cardo, Chaudonneret 1962, 476; cardo-basistipes, Pucat 1965, 57; fused cardo and basistipes, Pucat 1965, 58.) The "maxillary palp" of Salem (1931, 400) included the hypostomal sclerite which he specifically called the "first segment of maxillary palp" (401). See appendix.

incised hairs. -- Used by Gardner *et al.* (1973, 168) to refer to the medial setae of laciniarastrum 1 in *Aedes communis* De Geer which bear short fork-like branches apically. See SETA in appendix for comment. Also see LACINIARASTRUM 1.

inner part. -- See MAXILLARY BODY.

inner piece. -- See MAXILLARY BODY.

inner surface. -- See GALEASTIPES.

internal lobe. -- See LACINIASTIPES.

lacinia. -- See LACINIASTIPES and MAXILLARY BODY.

Lacinia and Galea. -- See MAXILLARY BODY.

lacinial sclerite. -- See LACINIASTIPES.

LACINIARASTRA (LR) (pleural form). -- In culicid and dixid larvae, as many as three rows of variously developed setae (rakes), laciniarastra 1-3, borne on the mesodorsal surface of the laciniastipes or the maxillary body when the limits of the laciniastipes are indistinct. (Syn.: row of setae, Raschke 1887, 10; long patch of short hairs, Mitchell 1906, 16; rows of spines, Wesché 1910, 12; stout, shorter bristles, Salem 1931, in part, 401; long hairs, Cook 1944, 44; setae, Schremmer 1949, 198; numerous hairs and spines, Shalaby 1959, in part, 223; great number of hairs, Shalaby 1959, in part, 223; hairy area, Christophers 1960, 206; three rows of short hairs, Pucat 1965, 56; lateral hairs of the lacinia, Pucat 1965, 58; short medial bristles of the lacinia, Pucat 1965, 59; cardolacinial mat, Pao and Knight 1970, 128; maxillary hair groups, Gardner *et al.* 1973, 168.) See appendix.

LACINIARASTRUM 1 (LR_1). -- In culicid and dixid larvae, the most mesal of the laciniarastra borne on the maxillary body, or the laciniastipes when distinguishable; usually consisting of stout spine-like setae but varying widely in form. (Syn.: series of long stiff hairs, Wesenberg-Lund 1921, 19; stout, shorter bristles, Salem 1931, 401; flat hairs, Becker 1938, 744; pectinate spines, Shalaby 1957a, in part, 157; long and stout spines, Shalaby 1957a, in part, 157; branched spines, Pao and Knight 1970, in part, 128; simple spines, Pao and Knight 1970, in part, 128; maxillary group of hairs 1, Gardner *et al.* 1973, 167; branched hairs, Gardner *et al.* 1973, in part, 168; incised hairs, Gardner *et al.* 1973, in part, 168; xiphoid hairs, Gardner *et al.* 1973, in part, 168.)

LACINIARASTRUM 2 (LR_2). -- In culicid and dixid larvae, a rake-like row of usually hair-like setae borne between laciniarastra 1 and 3 on the mesodorsal surface of the maxillary body, or the laciniastipes when distinguishable; sometimes consisting of branched setae and extending to a point near the maxillary brush. (Syn.: coating of long, soft hairs, Wesenberg-Lund 1921, in part, 19; row of stiff hairs, Pao and Knight 1970, 128; maxillary hair group 2 (MxG_2), Gardner *et al.* 1973, 168.)

LACINIARASTRUM 3 (LR_3). -- In culicid and dixid larvae, the most lateral of the laciniarastra borne on the mesodorsal surface of the maxillary body, or the laciniastipes when distinguishable; usually consisting of hair-like setae. (Syn.: coating of long, soft hairs, Wesenberg-Lund 1921, in part, 19; slender branched hairs, Pao and Knight 1970, 128; maxillary hair group 3 (MxG_3), Gardner *et al.* 1973, 168.)

LACINIASTIPES (LSt). -- Recognizable in many culicid larvae, mostly culicines, as the mesal half of the maxillary body distal to the cardostipital arm; representing the fused stipes and lacinia which cannot be separately distinguished; bearing mesodorsally the laciniarastra and seta 3-MP. The ventral and dorsal maxillary sutures, when present, serve as boundaries between the laciniastipes and galeastipes. (Syn.: internal lobe, Meinert 1886, 490; mental surface, Schremmer 1949, 198; lacinia, Shalaby 1957a, 156; cardolacinia, Pao and Knight 1970, 128; lacinial sclerite, Gardner *et al.* 1973, ventral part only, 168.) See appendix entry, MAXILLA.

LACINIASTIPITAL EXPANSION (LSE). -- In many culicid larvae, the dorsally located, sometimes poorly-developed, basal expansion of the laciniastipes which extends laterally from a point where the cardostipital or stipital arm and the dorsal maxillary suture merge; usually serving for the attachment of the cranial flexor of the lacinia but the stipital adductor is sometimes attached to it as well. See appendix entry, MAXILLA.

lamella. -- See MAXILLARY PALPAL SENSORIUM 3.

lamellae. -- See MAXILLARY PALPAL SENSORIUM 3, MAXILLARY PALPAL SENSORIUM 4, MAXILLARY PALPAL SENSORIUM 3 + 4, and MAXILLARY PALPAL SENSORIUM 5.

large stout hair. -- See SETA 7-MP.

lateral hairs of the lacinia. -- See LACINIARASTRA.

lateral maxillary articulation. -- See SECONDARY MAXILLARY ARTICULATION.

lateral sensoria. -- See MAXILLARY PALPAL SENSORIUM 3, MAXILLARY PALPAL SENSORIUM 4, MAXILLARY PALPAL SENSORIUM 3 + 4, and MAXILLARY PALPAL SENSORIUM 5.

leaflet-like appendages. -- See MAXILLARY PALPAL SENSORIUM 3, MAXILLARY PALPAL SENSORIUM 4, MAXILLARY PALPAL SENSORIUM 3 + 4, and MAXILLARY PALPAL SENSORIUM 5.

leaf-like appendages. -- See MAXILLARY PALPAL SENSORIUM 3, MAXILLARY PALPAL SENSORIUM 4, MAXILLARY PALPAL SENSORIUM 3 + 4, and MAXILLARY PALPAL SENSORIUM 5.

leaf-like sensory appendages. -- See MAXILLARY PALPAL SENSORIUM 3, MAXILLARY PALPAL SENSORIUM 4, MAXILLARY PALPAL SENSORIUM 3 + 4, and MAXILLARY PALPAL SENSORIUM 5.

lever. -- See CARDO.

line of fusion. -- See VENTRAL MAXILLARY SUTURE.

lobe of mandibula. -- See MAXILLARY BODY.

lobe of the maxilla. -- See MAXILLARY BODY.

long and pigmented spine. -- See SETA 6-MP.

long and stout spines. -- See LACINIARASTRUM 1, simple spines, and xiphoid hairs.

long hairs. -- See LACINIARASTRA.

longitudinal suture. -- See DORSAL MAXILLARY SUTURE.

long patch of short hairs. -- See LACINIARASTRA.

long sensory hair. -- See SETA 18-C.

mandibula. -- See MAXILLA.

mandibular palp. -- See MAXILLARY PALPUS.

main lobe. -- See MAXILLARY BODY.

main maxillary lobe. -- See MAXILLARY BODY.

main part of the maxilla. -- See MAXILLARY BODY.

MAXILLA (Mx). -- In insects, one of the second pair of gnathal appendages. In culicid larvae, borne on the transverse margin of the lateralia lateral to the mentum where they lie posterior to the mandibles; typically flattened lobe-like appendages consisting of variously developed and fused parts of the generalized insect maxilla which include the cardo, stipes, lacinia, galea, and maxillary palpus. (Syn. for culicid larvae: mandibula, Becker 1938, 754.) Smith (1908, 24) referred to the entire maxilla as the "maxillary palpus." See appendix.

maxillary apodeme. -- See HYPOSTOMAL SCLERITE and MEROSTIPITAL PROCESS.

maxillary apodeme bristle. -- See SETA 18-C.

maxillary articular rod. -- See CARDO.

maxillary articulation. -- Applied by Schremmer (1949, 196) to the junction of the maxillary body and the maxillary palpus. These structures, however, are sometimes fused basally (e.g., *Malaya* and *Uranotaenia* species) rather than freely articulated. In dixids, the maxillary palpus is borne on a lateral part of the stipes. (Syn.: articulation of lobe and palp of mandibula, Becker 1938, 744.)

MAXILLARY BODY (MxBo). -- In culicine (Gardner *et al.* 1973, 167) and toxorhynchitine larvae, the principal part of the maxilla consisting of the fused lacinia, galea, mesal part of the stipes, and the cardo; in anopheline and dixid larvae, consisting of all but the cardo which is a separate structure. The dorsal and ventral maxillary sutures demarcate the lacinia and galea in a number of culicines; a lightly sclerotized area delimits the galea and stipes ventrally in dixids. (Syn.: lobe of the maxilla, Meinert 1886, 490; central large part, Raschke 1887, 9; inner part, Raschke 1887, 29; inner piece, Puri 1931, 27; Lacinia and Galea, Puri 1931, 27; main part of the maxilla, Crawford 1933, 27; lobe of mandibula, Becker 1938, 744; Stipes, Cook 1944, 43; stipe, Foote 1952, 450; cardostipes, Shalaby 1958, 152; principal part of each maxilla, Snodgrass 1959, 18; main maxillary lobe, Snodgrass 1959, 18; main lobe, Pucat 1965, 56; dististipes plus the lacinia, Pucat 1965, 58.) The "maxillary palpus" of Smith (1908, 24) included the maxillary body and palpus. Cook (1944, 43) and Farnsworth (1947, 143) referred to the maxillary body as the "stipes" and believed that it may have included the galea and lacinia. Menees (1958, 32) believed that vestiges of the lacinia, galea, and cardo were fused with the stipes to form the maxillary body as defined here. See appendix entry, MAXILLA.

MAXILLARY BRUSH (MxB). -- In culicid (Shalaby 1957a, 155) and dixid larvae, a collection of variously modified setae arising distally from the maxillary body, or the galeastipes when distinguishable. (Syn.: tuft, Raschke 1887, 10; hooked hairs at edge of maxilla, Nuttall and Shipley 1901, 74; tuft A, Mitchell 1906, 16; strong brush, Wesché 1910, 12; tuft of hairs, Wesenberg-Lund 1921, 19; terminal brush, Wesenberg-Lund 1921, 19; tuft of bristles, Salem 1931, 400; fringe of leaflike acicular structures, Crawford 1933, 28; comb of the mandibular lobe, Becker 1938, 758; row of hooked setae, Schremmer 1949, 198; row of long, slightly bent hairs, Foote 1952, 450; short and rigid fan-shaped setae, Shalaby 1957b, in part, 278; maxillary combs, Shalaby 1957c, 437; fan shaped cluster of setae, Shalaby 1958, in part, 443; cluster of short hairs, Shalaby 1958, in part, 444; brushes bearing long setae, Snodgrass 1959, in part, 18; combs of shorter ones [setae], Snodgrass 1959, in part, 18; brush of hairs, Christophers 1960, 206; brush of long hairs, Pucat 1965, 56; brush of dististipes, Pucat 1965, 57; brush of simple hairs, Pucat 1965, 58; apical brush of hairs, Pucat 1965, 58; tuft or fan of hairs, Dodge 1966, 339.) See appendix.

maxillary brush hairs. -- See MAXILLARY BRUSH SETA.

MAXILLARY BRUSH SETA (MxBS). -- In culicid and dixid larvae, one of the variously modified setae of the maxillary brush; typically lamellate in anophelines and dixids. (Syn.: hooked hairs, Nuttall and Shipley 1901, 74; hooked setae, Schremmer 1949, 196; simple hairs, Shalaby 1957a, 157; spinulated hairs, Shalaby 1957a, 157; pectinate hairs, Shalaby 1957b, 278; maxillary brush hairs, Pucat 1965, 59; pointed-tipped simple hair, Pao and Knight 1970, 128; plumose hair, Pao and Knight 1970, 128; branch-tipped simple hair, Pao and Knight 1970, 128; basal pectinate hair, Pao and Knight 1970, 128; barbed hairs, Gardner *et al.* 1973, 169; brush-tipped hairs, Gardner *et al.* 1973, 169.)

maxillary combs. -- See MAXILLARY BRUSH.

maxillary group of hairs 1. -- See LACINIARASTRUM 1.

maxillary hair group 2 (MxG_2). -- See LACINIARASTRUM 2.

maxillary hair group 3 (MxG_3). -- See LACINIARASTRUM 3.

maxillary hair groups. -- See LACINIARASTRA.

maxillary palp. -- See MAXILLARY PALPUS and HYPOSTOMAL SCLERITE.

maxillary palpal bristle. -- See SETA 7-MP.

MAXILLARY PALPAL SENSORIUM (MS). -- In culicid and dixid larvae, one of the innervated cuticular structures located at the apex of the maxillary palpus; having the form of a peg, stalk, chamber, scale, or cone. (Syn.: small rigid setae, Raschke 1887, 10; blunt spines, Mitchell 1906, 15; apical teeth, Smith 1908, 24; sensory appendages, Howard *et al.* 1912, 86; digit-like prolongations, Wesenberg-Lund 1921, 19; stout, short bristles, Salem 1931, 402; small spines, Marshall 1938, in culicines, 46; appendages, Marshall 1938, in anophelines,

46; terminal appendages of mandibular palp, Becker 1938, 744; terminal hairs, Belkin 1950, 686; sensory pegs, Schremmer 1950, 386; sensoria, Shalaby 1956, 153; apical soft papillae, Christophers 1960, 206.) See appendix. Also see SENSORIUM.

MAXILLARY PALPAL SENSORIUM 1 (MS_1). -- In culicid and dixid larvae, the more ventral (in culicines and toxorhynchitines) or the more lateral (in anophelines and dixids) of a pair of innervated, usually pedicel-borne, peg-like cuticular structures located dorsolaterally at the apex of the maxillary palpus. (Syn: short, stalk setae, Meinert 1886, in part, 394; spines, Nuttall and Shipley 1901, in part, 45; spine-like sensory appendages, Puri 1931, in part, 28; pair of finger-shaped appendages, Puri 1931, in part, 28; finger-shaped appendages, Marshall 1938, in part, 46; mesal sensoria, Shalaby 1956, in part, 153; first sensorium, Pao and Knight 1970, 130; sensorium 1 (S_1), Gardner *et al.* 1973, 169.)

MAXILLARY PALPAL SENSORIUM 2 (MS_2). -- In culicid and dixid larvae, the more dorsal (in culicines and toxorhynchitines) or the more mesal (in anophelines and dixids) of a pair of innervated, usually pedicel-borne, peg-like cuticular structures located dorsolaterally at the apex of the maxillary palpus. (Syn.: short, stalk setae, Meinert 1886, in part, 394; spines, Nuttall and Shipley 1901, in part, 56; spine-like sensory appendages, Puri 1931, in part, 28; pair of finger-shaped appendages, Puri 1931, in part, 28; finger-shaped appendages, Marshall 1938, in part, 46; mesal sensoria, Shalaby 1956, in part, 153; second sensorium, Pao and Knight 1970, 130; sensorium 2 (S_2), Gardner *et al.* 1973, 169.)

MAXILLARY PALPAL SENSORIUM 3 (MS_3). -- In anopheline larvae, the most dorsal of 3 usually scale- or leaf-like cuticular structures located mesally at the apex of the maxillary palpus; in culicine larvae, believed to have fused with maxillary palpal sensorium 4 to form a translucent, centrally located stalk- to sac-like structure. (Syn.: blades, Meinert 1886, in part, 394; lamella, Nuttall and Shipley 1901, 56; plate, Nuttall and Shipley 1901, 74; leaf-like sensory appendages, Puri 1931, in part, 28; leaf-like appendages, Puri 1931, in part, 28; leaflet-like appendages, Christophers 1933, in part, 40, lamellae, Schremmer 1949, in part, 196; lateral sensoria, Shalaby 1956, in part, 153; ampulla, Gardner *et al.* 1973, in part, 170.)

MAXILLARY PALPAL SENSORIUM 4 (MS_4). -- In anopheline larvae, the middle of the 3 usually scale- or leaf-like cuticular structures located mesally at the apex of the maxillary palpus; in culicine larvae, believed to have fused with maxillary palpal sensorium 3 to form a translucent, centrally located stalk- to sac-like structure. (Syn.: blades, Meinert 1886, in part, 394; leaf-like sensory appendages, Puri 1931, in part, 28; leaf-like appendages, Puri 1931, in part, 28; leaflet-like appendages, Christophers 1933, in part, 40; lamellae, Schremmer 1949, in part, 196; lateral sensoria, Shalaby 1956, in part, 153; ampulla, Gardner *et al.* 1973, in part, 170.)

MAXILLARY PALPAL SENSORIUM 3 + 4 (MS_{3+4}). -- In many culicid larvae, a cuticular stalk, sac, or chamber, often containing a pincushion or peg-like sensory structure, located centrally at the apex of the maxillary palpus; believed

to represent the fused maxillary palpal sensoria 3 and 4 of anophelines. (Syn.: blades, Meinert 1886, in part, 394; leaf-like sensory appendages, Puri 1931, in part, 28; leaf-like appendages, Puri 1931, in part, 28; leaflet-like appendages, Christophers 1933, in part, 40; lamellae, Schremmer 1949, in part, 196; lateral sensoria, Shalaby 1956, in part, 153; ampulla, Gardner *et al.* 1973, 170.)

MAXILLARY PALPAL SENSORIUM 5 (MS_5). -- In anopheline larvae, the most ventral of the 3 usually scale- or leaf-like cuticular structures located at the apex of the maxillary palpus; in culicine and toxorhynchitine larvae, the more or less mesodorsally located, usually peg-like structure. (Syn.: blades, Meinert 1886, in part, 394; leaf-like sensory appendages, Puri 1931, in part, 28; leaf-like appendages, Puri 1931, in part, 28; leaflet-like appendages, Christophers 1933, in part, 40; lamellae, Schremmer 1949, in part, 196; lateral sensoria, Shalaby 1956, in part, 153; third sensorium, Pao and Knight 1970, 130; sensorium 3(S_3), Gardner *et al.* 1973, 169.)

MAXILLARY PALPAL SENSORIUM 6 (MS_6). -- In culicid and toxorhynchitine larvae, an innervated, often pedicel-borne, peg-like cuticular structure located mesally at the apex of the maxillary palpus; in anopheline and dixid larvae, a peg-like cuticular structure located lateroventrally at the apex. (Syn.: pointed, dagger-like seta, Meinert 1886, 394; spine-like sensory appendages, Puri 1931, in part, 28; finger, Christophers 1933, 40; finger-shaped appendages, Marshall 1938, in part, 46; spines, Schremmer 1949, in part, 196; fourth sensorium, Pao and Knight 1970, 130; sensorium 4 (S_4), Gardner *et al.* 1973, 169.)

MAXILLARY PALPAL SENSORIUM 7 (MS_7). -- In culicine and perhaps some toxorhynchitine larvae, an innervated peg-like cuticular structure located mesoventrally at the apex of the maxillary palpus; in anopheline and dixid larvae, a flask- or cone-like cuticular structure located laterally at the apex. (Syn.: spines, Nuttall and Shipley 1901, in part, 56, spine-like sensory appendages, Puri 1931, in part, 28; cone-shaped appendage, Puri 1931, 28; cone, Christophers 1933, 40; finger-shaped appendages, Marshall 1938, in part, 46; minute accessory sensorium, Pao and Knight 1970, 130; sensorium 5 (S_5), Gardner *et al.* 1973, 169.)

MAXILLARY PALPAL SPICULI (MPS) (pleural form). -- In culicid and dixid larvae, the small spine-like cuticular projections occurring on the maxillary palpus; located on most of its surface in dixids, the dorsal surface in anophelines, and near its apex in toxorhynchitines and some culicines (primarily predaceous species). (Syn.: minute hairs, Nuttall and Shipley 1901, 56, minute spinous projections, Puri 1931, 27.)

maxillary palpifer. -- See HYPOSTOMAL SCLERITE.

maxillary palpus. -- See MAXILLA, MAXILLARY BODY, and MAXILLARY PALPUS.

MAXILLARY PALPUS (MPlp). -- In insects, the telopodite of one of the second gnathal appendages. In culicid and dixid larvae, a laterally located cylindrical or fusiform lobe which is supported by the stipes in dixids and articulated basally with the maxillary body in most culicids. Part of the stipes has been incorporated into the maxillary palpus in anophelines, toxorhynchitines, and many culicines. (Syn. for culicid larvae: palp of the maxilla, Meinert 1886, 490; outer smaller part, Raschke 1887, 9; outer part, Raschke 1887, 29; palp, Nuttall and Shipley 1901, 56; palpus, Mitchell 1906, 15, basal process, Smith 1908, 24; basal appendage, Wesenberg-Lund 1921, 19; palpe, Wesenberg-Lund 1921, 19; second segment of palp, Salem 1931, 401; maxillary palp, Christophers 1933, 40; mandibular palp,

Becker 1938, 744.) The "maxillary palp" of Salem (1931, 400), as opposed to that of Christophers (1933, 40), included the hypostomal sclerite. See appendix entry, MAXILLA.

MAXILLARY PILOSE AREA (MxPA). -- In culicid and dixid larvae, a grouping or covering of fine hair-like cuticular filaments located lateral to the dorsal maxillary suture on the membranous dorsal surface of the maxillary body, or the galeastipes when distinguishable; covering most of the dorsal surface in anophelines and dixids; probably absent in all or most toxorhynchitines. (Syn.: setal field, Schremmer 1949, 199.) The hair-like structures of this area were described as "fine branched hairs" by Pao and Knight (1970, 130) and "sparse filamentous hairs" by Gardner *et al.* (1973, 168).

MAXILLARY SPICULOSE AREA (MSpA). -- In some culicine larvae, a grouping of minute spine-like cuticular projections located on the lateral surface of the maxillary body, or the galeastipes when distinguishable. (Syn.: microspines, Shalaby 1957b, 278; spinules, Shalaby 1958, 444; short stout spines, Pao and Knight 1970, 130; short spines, Gardner *et al.* 1973, 167.) It is believed that Gardner *et al.* (1973) intended to call their "short spines" the maxillary spines since these structures are labelled as "MSp" in figure 4 (180).

maxillary spine. -- See SETA 3-MP and SETA 5-MP.

maxillary spurs. -- See GALEAL SENSORIUM.

maxillary suture. -- See DORSAL MAXILLARY SUTURE.

medial maxillary articulation. -- See PRIMARY MAXILLARY ARTICULATION.

membranous area. -- Applied by Pao and Knight (1970, 130) to the transparent area of cuticle located at the base of the galeal sensoria in *Aedes vexans* (Meigen). It is probably homologous with the transparent, membranous cuticle which surrounds and/or forms the pedicel(s) that bear(s) the sensorium(a) in other mosquito larvae. (Syn.: oval membranous area, Shalaby 1957a, 157.) The "spinose lobe" of Christophers (1960, 206) is believed to represent the pedicel(s).

mental articular rod. -- See PARACOILA.

mental surface. -- See LACINIASTIPES.

MEROSTIPES (mSt). -- In dixid larvae, the easily recognized lateral part of the stipes bearing the maxillary palpus and articulating dorsally with the base of the mandible; in most anopheline larvae, partly separated from the galea ventrally by the galeastipital fissure but mostly incorporated into the maxillary palpus; homologous with the merostipital sclerite and the merostipital process found in many culicid larvae. See appendix entry, MAXILLA.

MEROSTIPITAL PROCESS (mSP). -- In many culicine larvae, a small, strongly sclerotized band or strip of cuticle which is attached to the base of the maxillary palpus; articulated to the base of the mandible just mesal to the postartis; homologous with the merostipes of dixids and the merostipital

sclerite of some other culicines. The structure is completely incorporated into the maxillary palpus in toxorhynchitines, anophelines, and some culicines permitting the maxillary palpus to articulate directly with the base of the mandible (and postartis in anophelines). (Syn.: secondary process, Cook 1944, 44; short sclerotized rod, Shalaby 1956, 153; maxillary apodeme, Shalaby 1957a, 157; sclerotized processes, Pucat 1965, 56.) The "short sclerotized rod" of Shalaby (1956, 153; 1958, 445) is labelled as the "exoparartis" in his figures. Similarly, a point at the base of the maxillary palpus is labelled as the "exoparartis" in the figures of his 1959 (209) paper. The "maxillary apodeme" of Shalaby (1957c, 436) is described as an "invagination of the ventral wall of the head" and is, therefore, synonymous with the postcoila (see Part IX, Laffoon and Knight 1973, 52). See appendix entry, MAXILLA.

MEROSTIPITAL SCLERITE (mSS). -- In many culicine larvae, a small band of cuticle located laterally below the base of the maxillary palpus; articulated with the base of the mandible just mesal to the postartis; homologous with the merostipes of dixids and the merostipital process of some other culicines. See appendix entry, MAXILLA.

mesal sensoria. -- See MAXILLARY PALPAL SENSORIUM 1 and MAXILLARY PALPAL SENSORIUM 2.

microspines. -- See MAXILLARY SPICULOSE AREA.

minute accessory sensorium. -- See MAXILLARY PALPAL SENSORIUM 7.

minute hairs. -- See MAXILLARY PALPAL SPICULI.

minute spinous projections. -- See MAXILLARY PALPAL SPICULI.

mouthpart ring-based seta (3-MP). -- See SETA 3-MP.

mouthpart ring-based seta (4-MP). -- See SETA 4-MP.

mouthpart ring-based seta (5-MP). -- See SETA 5-MP.

mouthpart ring-based seta (6-MP). -- See SETA 18-C.

mouthpart ring-based seta (7-MP). -- See SETA 6-MP.

MSp. -- See MAXILLARY SPICULOSE AREA.

numerous hairs and spines. -- See LACINIARASTRA.

outer part. -- See MAXILLARY PALPUS.

outer smaller part. -- See MAXILLARY PALPUS.

oval membranous area. -- See membranous area.

paired bristle. -- See SETA 18-C.

pair of finger-shaped appendages. -- See MAXILLARY PALPAL SENSORIUM 1 and MAXILLARY PALPAL SENSORIUM 2.

pair of finger-shaped papillae. -- See GALEAL SENSORIUM.

palp. -- See MAXILLARY PALPUS.

palpe. -- See MAXILLARY PALPUS.

palp hair. -- See SETA 7-MP.

palpifer. -- See HYPOSTOMAL SCLERITE.

palp of the maxilla. -- See MAXILLARY PALPUS.

palpus. -- See MAXILLARY PALPUS.

papilliform membranous appendages. -- See GALEAL SENSORIUM.

PARACOILA (Pla). -- See Part IX (Laffoon and Knight 1973, 51). (Syn.: in addition to those listed in Part IX; second ossicle, Crawford 1933, 29; fulcral lever, Becker 1938, 756; sclerotized rod, Farnsworth 1947, 143; sclerotized rod lateral to the prementum, Farnsworth 1947, 147; articular rod ("Gelenkstab" GSt_2), Schremmer 1949, 185; mental articular rod, Schremmer 1950, 386; submaxillary apodeme, Christophers 1960, in part, 206; articular bar, Clements 1963, in Fig. 18a, 37.)

PARARTIS (Pat). -- In most insects, the part of the maxilla articulating with the paracoila (a cranial structure); often forming a condyle. In culicine and toxorhynchitine larvae, the ventral end or part of the cardostipital arm; in anopheline and dixid larvae the cardo funtions as the parartis. See appendix.

pectinate hairs. -- First used by Shalaby (1957b, 278) to designate a class of ventral maxillary brush setae in *Aedes aegypti* (L.) which have long branches arising mainly on their lateral sides. (Syn. based on location: basal pectinate hair, Pao and Knight 1970, 128.) See SETA in appendix for comment. Also see MAXILLARY BRUSH SETA and the synonym listed above.

pectinate spines. -- Used by Shalaby (1957a, 157) to refer to the proximal setae of laciniarastrum 1 in *Aedes aegypti* (L.) which are apically branched. (Syn.: branched spines, Pao and Knight 1970, 128; branched hairs, Gardner *et al.* 1973, 168.) See SETA in appendix for comment. Also see LACINIARASTRUM 1 and the synonyms listed above.

pigmented and sclerotized apodeme. -- See HYPOSTOMAL SCLERITE.

pigmented spine. -- See SETA 6-MP.

plate. -- See MAXILLARY PALPAL SENSORIUM 3.

plumose hair. -- Used by Pao and Knight (1970, 128) to designate one of a class of dorsally located maxillary brush setae in *Aedes vexans* (Meigen) which are subapically branched. (Syn. based on location: simple hairs, Shalaby 1957a, 157; brush-tipped hairs, Gardner *et al.* 1973, 169.) See SETA in appendix for comment. Also see MAXILLARY BRUSH SETA and the synonyms listed above.

pointed, dagger-like seta. -- See MAXILLARY PALPAL SENSORIUM 6.

pointed-tipped simple hair. -- Used by Pao and Knight (1970, 128) to designate one of a class of dorsally located maxillary brush setae in *Aedes vexans* (Meigen) which have pointed tips. (Syn. based on location: simple hairs, Shalaby 1957a, 157; brush-tipped hairs, Gardner *et al.* 1973, 169.) See SETA in appendix for comment. Also see MAXILLARY BRUSH SETA and the synonyms listed above.

PRIMARY MAXILLARY ARTICULATION (PMxA). -- In most culicid larvae and other insects, the junction line along which the parartis and paracoila come into contact during maxillary movements; in anophelines and dixid larvae, between the cardo and paracoila. (Syn.: dorsal articulatory point, Farnsworth 1947, 143; medial maxillary articulation, Schremmer 1950, 400.) See appendix.

principal part of each maxilla. -- See MAXILLARY BODY.

ring-based seta (3-MP). -- See SETA 3-MP.

ring-based seta (4-MP). -- See SETA 4-MP.

ring-based seta (5-MP). -- See SETA 5-MP.

ring-based seta (6-MP). -- See SETA 18-C.

rod of cardo. -- See CARDO.

rod of the cardo. -- See CARDO.

row of hooked setae. -- See MAXILLARY BRUSH.

row of long, slightly bent hairs. -- See MAXILLARY BRUSH.

row of setae. -- See LACINIARASTRA.

row of stiff hairs. -- See LACINIARASTRUM 2.

rows of spines. -- See LACINIARASTRA.

sclerite at base of palpus. -- See HYPOSTOMAL SCLERITE.

sclerotized arm. -- See CARDO.

sclerotized arm of the maxilla. -- See CARDO.

sclerotized processes. -- See MEROSTIPITAL PROCESS.

sclerotized rod. See PARACOILA.

sclerotized rod lateral to the prementum. -- See PARACOILA.

sclerotized rod-like structure. -- See CARDOSTIPITAL ARM.

SECONDARY MAXILLARY ARTICULATION (SMxA). -- In many nematocerous and brachycerous larvae, a secondary point of articulation formed between the maxilla and mandible basally; in culicid and dixid larvae, a junction line along which a point just mesal to the postartis of the mandible, sometimes the postartis as well, and a lateral part or remnant of the stipes (merostipes), which may be completely incorporated into the maxillary palpus, come into contact during maxillary and mandibular movements, (Syn. for dixid larvae, lateral maxillary articulation, Schremmer 1950, 400.) See appendix.

secondary process. -- See MEROSTIPITAL PROCESS.

second ossicle. -- See PARACOILA.

second segment of palp. -- See MAXILLARY PALPUS.

second sensorium. -- See MAXILLARY PALPAL SENSORIUM 2.

sensoria. -- See MAXILLARY PALPAL SENSORIUM.

SENSORIUM (S). -- Defined by MacGillivray (1923, 76) as the ectal part of a sense organ. See appendix.

sensorium 1 (S_1). -- See MAXILLARY PALPAL SENSORIUM 1.

sensorium 2 (S_2). -- See MAXILLARY PALPAL SENSORIUM 2.

sensorium 3 (S_3). -- See MAXILLARY PALPAL SENSORIUM 5.

sensorium 4 (S_4). -- See MAXILLARY PALPAL SENSORIUM 6.

sensorium 5 (S_5). -- See MAXILLARY PALPAL SENSORIUM 7.

sensory appendages. -- See MAXILLARY PALPAL SENSORIUM.

sensory pegs. -- See MAXILLARY PALPAL SENSORIUM.

series of long stiff hairs. -- See LACINIARASTRUM 1.

setae. -- See LACINIARASTRA.

SETA 18-C (18). -- In culicid and dixid larvae, a prominent seta borne on either the hypostomal sclerite or the ventral margin of the cranium near the hypostomal ridge. (Syn.: long sensory hair, Puri 1931, 27; double bristle, Salem 1931, 401; paired bristle, Salem 1931, 402; basal maxillary hair, Marshall 1938, 43; small hair, Foote 1952, 452; stout and plumose bristle, Shalaby 1956, 153; maxillary apodeme bristle, Shalaby 1956, 155; two-branched hair, Shalaby 1957a, 157; short, stout and plumose bristle, Shalaby 1958, 445; ring-based seta (6-MP), Pao and Knight 1970, 131, seta 6-MP, Knight and Laffoon 1971, 164; mouthpart ring-based seta (6-MP), Gardner *et al.* 1973, 169.) See appendix.

SETA 3-MP (3). -- (Following definition to replace that in Part VIII, Knight and Laffoon 1971, 164.) -- In culicid larvae, a seta inserted on the mesodorsal surface of the maxillary body, or the laciniastipes when distinguishable; usually located between laciniarastra 2 and 3. (Syn.: maxillary spine, Foote 1952, 450 but not later authors; short and needle-like spine, Shalaby 1957c, 437; short needle-like spine, Shalaby 1959, 209; ring-based seta (3-MP), Pao and Knight 1970, 128; mouthpart ring-based seta (3-MP), Gardner *et al.* 1973, 169.)

SETA 4-MP (4). -- (Following definition to replace that in Part VIII, Knight and Laffoon 1971, 164.) -- In culicid larvae, a seta borne dorsally on the maxillary body, or the galeastipes when distinguishable; occurring near the distolateral margin in most culicines. (Syn.: single or double conspicuous hair, Christophers 1960, in part, 206; ring-based seta (4-MP), Pao and Knight 1970, 130; mouthpart ring-based seta (4-MP), Gardner *et al.* 1973, 169.)

SETA 5-MP (5). -- (Following definition to replace that in Part VIII, Knight and Laffoon 1971, 164.) -- In culicid and dixid larvae, a seta borne ventrally on the maxillary body, or the galeastipes when distinguishable; occurring near the distolateral margin in most culicines. (Syn.: subapical spine, Smith 1908, 24; thorn-like hair, Wesenberg-Lund 1921, 19; maxillary spine, Shalaby 1956, 153 and later authors; single or double conspicuous hair, Christophers 1960, in part, 206; ring-based seta (5-MP), Pao and Knight 1970, 130; mouthpart ring-based seta (5-MP), Gardner *et al.* 1973, 169.) The seta labelled as seta 7-MP on the anopheline maxilla in Fig. 44b of Knight and Laffoon (1971, 178) is seta 5-MP.

seta 6-MP. -- See SETA 18-C.

SETA 6-MP (6). -- In culicid larvae, a seta occurring distomesally on the maxillary body, or the galeastipes when distinguishable, at the base of the maxillary brush. (Syn.: long and pigmented spine, Shalaby 1957a, 158; pigmented spine, Shalaby 1957b, 279; short and pigmented spine, Shalaby 1958, 442; short pigmented spine, Shalaby 1958, 444; seta 7-MP, Knight and Laffoon 1971, 164; mouthpart ring-based seta (7-MP), Gardner *et al.* 1973, 169.) The medioventral seta on anopheline maxillae, which was believed to be a possible equivalent to seta 7-MP (designated here as seta 6-MP) by Knight and Laffoon (1971, 164 and Fig. 44b, 178), is seta 5-MP. See appendix.

seta 7-MP. -- See SETA 6-MP.

SETA 7-MP (7). -- In anopheline larvae, a prominent seta borne laterally on the maxillary palpus; in dixid larvae, a smaller seta borne laterally on the merostipes is probably homologous. (Syn.: stout seta, which branches into fine rays, Meinert 1886, 394; cluster of longer ones [hairs], Nuttall and Shipley 1901, 56; large stout hair, Puri 1931, 27; palp hair, Marshall 1938, 43; branched bristle, Shalaby 1956, 153; maxillary palpal bristle, Shalaby 1956, 155; unique bristle, Shalaby 1958, 445; seta 8-MP, Knight and Laffoon 1971, 164.) See appendix.

seta 8-MP. -- See SETA 7-MP.

setal field. -- See MAXILLARY PILOSE AREA.

short and needle-like spine. -- See SETA 3-MP.

short and rigid fan-shaped setae. -- See MAXILLARY BRUSH.

short and pigmented spine. -- See SETA 6-MP.

short medial bristles of the lacinia. -- See LACINIARASTRA.

short needle-like spine. -- See SETA 3-MP.

short pigmented spine. -- See SETA 6-MP.

short sclerotized rod. -- See MEROSTIPITAL PROCESS and exoparartis.

short spines. -- See MAXILLARY SPICULOSE AREA.

short, stalk setae. -- See MAXILLARY PALPAL SENSORIUM 1 and MAXILLARY PALPAL SENSORIUM 2.

short, stout and plumose bristle. -- See SETA 18-C.

short stout spines. -- See MAXILLARY SPICULOSE AREA.

simple hairs. -- Used by Shalaby (1957a, 157) to designate a class of dorsally situated maxillary brush setae in *Aedes aegypti* (L.) which have pointed tips. (Syn. based on location: pointed-tipped simple hair, Pao and Knight 1970, in part, 128; plumose hair, Pao and Knight 1970, in part, 128; brush-tipped hairs, Gardner *et al.* 1973, 169.) See SETA in appendix for comment. Also see MAXILLARY BRUSH SETA and the synonyms listed above.

simple spines. -- Used by Pao and Knight (1970, 128) to refer to the distal spine- or blade-like setae of laciniarastrum 1 in *Aedes vexans* (Meigen). (Syn.: long and stout spines, Shalaby 1957a, in part, 157; xiphoid hairs, Gardner *et al.* 1973, 168.) See SETA in appendix for comment. Also see LACINIARASTRUM 1 and the synonyms listed above.

single or double conspicuous hair. -- See SETA 4-MP and SETA 5-MP.

slender branched hairs. -- See LACINIARASTRUM 3.

small hair. -- See SETA 18-C.

small rigid setae. -- See MAXILLARY PALPAL SENSORIUM.

small sclerite. -- See HYPOSTOMAL SCLERITE.

small spines. -- See MAXILLARY PALPAL SENSORIUM.

sparse filamentous hairs. -- See MAXILLARY PILOSE AREA.

spine-like sensory appendages. -- See MAXILLARY PALPAL SENSORIUM 1, MAXILLARY PALPAL SENSORIUM 2, MAXILLARY PALPAL SENSORIUM 6, and MAXILLARY PALPAL SENSORIUM 7.

spines. -- See MAXILLARY PALPAL SENSORIUM 1, MAXILLARY PALPAL SENSORIUM 2, MAXILLARY PALPAL SENSORIUM 6, MAXILLARY PALPAL SENSORIUM 7, and GALEAL SENSORIUM.

spinose lobe. -- See membranous area.

spinulated hairs. -- Used by Shalaby (1957a, 157) to designate a group of medially located maxillary brush setae in *Aedes aegypti* (L.) which have blunt tips and tiny serrations distally. (Syn. based on location: branch-tipped simple hair, Pao and Knight 1970, 128; barbed hairs, Gardner *et al.* 1973, 169.) See SETA in appendix for comment. Also see MAXILLARY BRUSH SETA and the synonyms listed above.

spinules. -- See MAXILLARY SPICULOSE AREA.

stipe. -- See MAXILLARY BODY.

stipes. -- See HYPOSTOMAL SCLERITE and MAXILLARY BODY.

Stipes. -- See HYPOSTOMAL SCLERITE.

STIPITAL ARM (SAr). -- In anopheline and dixid larvae, the apodematous ridge located mesally at the base of the maxillary body; articulating with the cardo; providing attachment for the stipital adductor muscle in dixids; and continuous with the dorsal maxillary suture. (Syn.: black pedicle, Crawford 1933, 27; arculus, Becker 1938, 756.) See appendix entry, MAXILLA.

stout and plumose bristle. -- See SETA 18-C.

stout bristles. -- See GALEAL SENSORIUM.

stout seta, which branches into fine rays. -- See SETA 7-MP.

stout, short bristles. -- See MAXILLARY PALPAL SENSORIUM.

stout, shorter bristles. -- See LACINIARASTRA and LACINIARASTRUM 1.

strip of chitin. -- See DORSAL MAXILLARY SUTURE.

strong brush. -- See MAXILLARY BRUSH.

subapical spine. -- See SETA 5-MP.

submaxillary apodeme. -- See PARACOILA.

SUBMAXILLARY SCLERITE (SSc). -- In some *Uranotania* and perhaps other culicid larvae, a lightly sclerotized, setose sclerite located ventrally between the maxillary body and the hypostomal ridge; forming part of the membrane which connects the base of the maxilla and the hypostomal ridge. See appendix.

suture. -- See DORSAL MAXILLARY SUTURE.

suture on the oral side. -- See DORSAL MAXILLARY SUTURE.

terminal appendages of mandibular palp. -- See MAXILLARY PALPAL SENSORIUM.

terminal brush. -- See MAXILLARY BRUSH.

terminal hairs. -- See MAXILLARY PALPAL SENSORIUM.

thickened ridge. -- See DORSAL MAXILLARY SUTURE.

third sensorium. -- See MAXILLARY PALPAL SENSORIUM 5.

thorn-like hair. -- See SETA 5-MP.

three rows of short hairs. -- See LACINIARASTRA.

three-sided chitinous plate. -- See HYPOSTOMAL SCLERITE.

triangular sclerite. -- See HYPOSTOMAL SCLERITE.

tuft. -- See MAXILLARY BRUSH.

tuft A. -- See MAXILLARY BRUSH.

tuft of bristles. -- See MAXILLARY BRUSH.

tuft of hairs. -- See MAXILLARY BRUSH.

tuft or fan of hairs. -- See MAXILLARY BRUSH.

two-branched hair. -- See SETA 18-C.

unique bristle. -- See SETA 7-MP.

VENTRAL MAXILLARY SUTURE (VMxS). -- In some culicine larvae, a groove or furrow on the ventral surface of the maxillary body; often appearing only as a line of slightly more heavily sclerotized cuticle; extending from a point mesal to the maxillary brush to the basal notch of the maxillary body; serving as a boundary between the laciniastipes and galeastipes. (Syn.: line of fusion, used by Gardner *et al.* (1973, 168) as a descriptive phrase rather than a designated term.) See appendix entry, MAXILLA

ventral sclerite of the maxilla. -- See HYPOSTOMAL SCLERITE.

xiphoid hairs. -- Used by Gardner *et al.* (1973, 168) to refer to the distal sword-like setae of laciniarastrum 1 in *Aedes communis* De Geer. (Syn.: long and stout spines, Shalaby 1957a, in part, 157; simple spines, Pao and Knight 1970, 128.) See SETA in appendix for comment. Also see LACINIARASTRUM 1 and the synonyms listed above.

Fig. 61. *Dixa* sp. Maxilla of fourth stage larva.

a. Ventral aspect of right maxilla.

b. Dorsal aspect of left maxilla.

ABBREVIATIONS

3 -- seta 3-MP

5 -- seta 5-MP

6 -- seta 6-MP

7 -- seta 7-MP

18 -- seta 18-C

Cd -- cardo

GS -- galeal sensorium

GSF -- galeastipital fissure

HSc -- hypostomal sclerite

LR_1 -- laciniarastrum 1

LR_2 -- laciniarastrum 2

LR_3 -- laciniarastrum 3

MPlp -- maxillary palpus

MPS -- maxillary palpal spiculi

MS_1 -- maxillary palpal sensorium 1

MS_2 -- maxillary palpal sensorium 2

MS_6 -- maxillary palpal sensorium 6

MS_7 -- maxillary palpal sensorium 7

mSt -- merostipes

MxB -- maxillary brush

MxBo -- maxillary body

MxBS -- maxillary brush seta

MxPA -- maxillary pilose area

Pla -- paracoila

PMxA -- primary maxillary articulation

SAr -- stipital arm (covered by LR_3)

Fig. 61

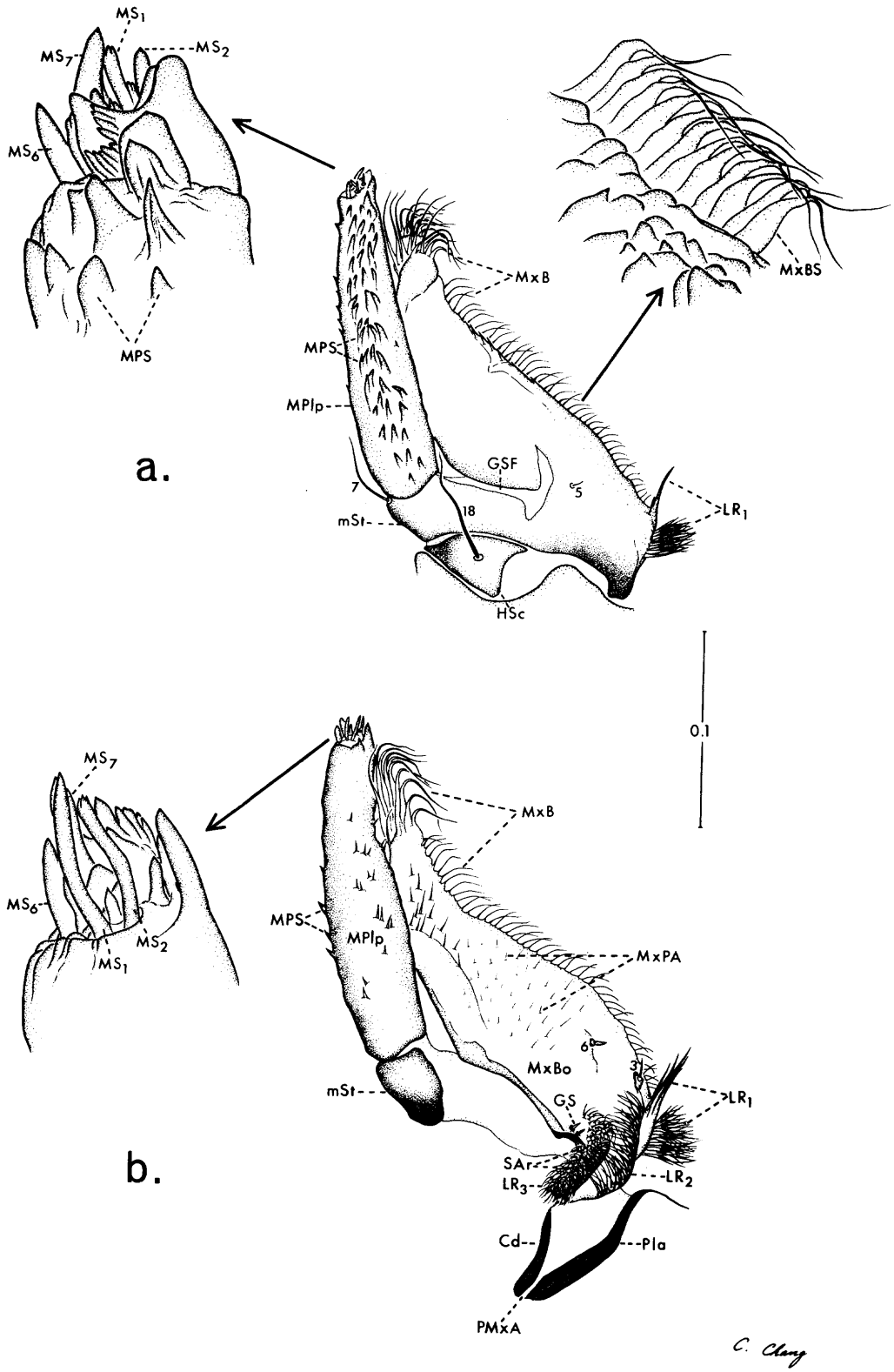

MS1
MS7
MS2
MS6
MPS
a.
MxB
MxBS
MPS
MPlp
GSF
7
5
18
mSt
LR1
HSc
0.1
MS7
MS6
MS2
MS1
MxB
MPS
MPlp1
MxPA
6
3
MxBo
mSt
GS
LR1
SAr
LR3
LR2
b.
Cd
Pla
PMxA
C. Clary

Fig. 62. *Anopheles (Anopheles) crucians* Wiedemann. Maxilla of fourth stage larva.

a. Ventral aspect of left maxilla.

b. Dorsal aspect of right maxilla.

ABBREVIATIONS

3 -- seta 3-MP

4 -- seta 4-MP

5 -- seta 5-MP

6 -- seta 6-MP

7 -- seta 7-MP

18 -- seta 18-C

Cd -- cardo

DMxS -- dorsal maxillary suture

GS -- galeal sensorium

GSF -- galeastipital fissure

HSc -- hypostomal sclerite

LR_1 -- laciniarastrum 1

LR_2 -- laciniarastrum 2

LR_3 -- laciniarastrum 3

LSE -- laciniastipital expansion

MPlp -- **maxillary palpus**

MPS -- maxillary palpal spiculi

MS_1 -- maxillary palpal sensorium 1

MS_2 -- maxillary palpal sensorium 2

MS_3 -- maxillary palpal sensorium 3

MS_4 -- maxillary palpal sensorium 4

MS_5 -- maxillary palpal sensorium 5

MS_6 -- maxillary palpal sensorium 6

MS_7 -- maxillary palpal sensorium 7

mSt -- merostipes

MxB -- maxillary brush

MxBo -- maxillary body

MxBS -- maxillary brush seta

MxPA -- maxillary pilose area

SAr -- stipital arm

Fig. 62

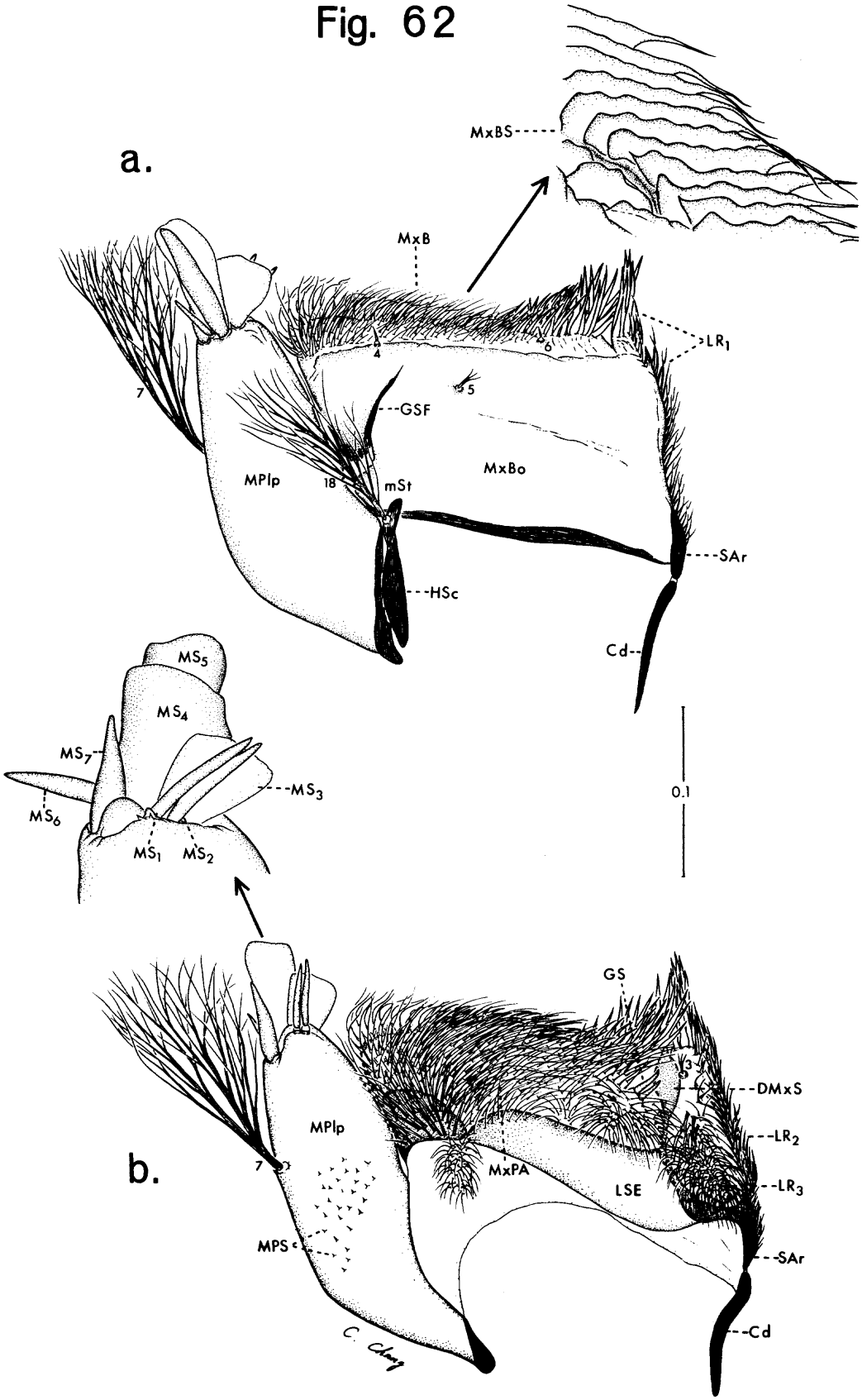

a.
MxBS
MxB
LR1
GSF
MPlp
MxBo
mSt
SAr
HSc
Cd
MS5
MS4
MS7
MS3
MS6
MS1
MS2
0.1
b.
GS
DMxS
LR2
LR3
SAr
Cd
MPlp
MxPA
LSE
MPS

Fig. 63. *Uranotaenia (Pseudoficalbia) lagunensis* Baises. Ventral aspect of right maxilla of fourth stage larva.

Fig. 64. *Eretmapodites chrysogaster* Graham. Ventral aspect of right maxilla of fourth stage larva..

ABBREVIATIONS

5 -- seta 5-MP

6 -- seta 6-MP

18 -- seta 18-C

CAr -- cardostipital arm

GS -- galeal sensorium

GSt -- galeastipes

HSc -- hypostomal sclerite

LR_1 -- laciniarastrum 1

LR_2 -- laciniarastrum 2

LSt -- laciniastipes

MPlp -- maxillary palpus

MS -- maxillary palpal sensoria

MS_1 -- maxillary palpal sensorium 1

MS_2 -- maxillary palpal sensorium 2

MS_{3+4} -- maxillary palpal sensorium 3 + 4

MS_5 -- maxillary palpal sensorium 5

MS_6 -- maxillary palpal sensorium 6

MS_7 -- maxillary palpal sensorium 7

mSS -- merostipital sclerite

MxB -- maxillary brush

Pat -- parartis

Pla -- paracoila

SSc -- submaxillary sclerite

VMxS -- ventral maxillary suture

Fig. 63

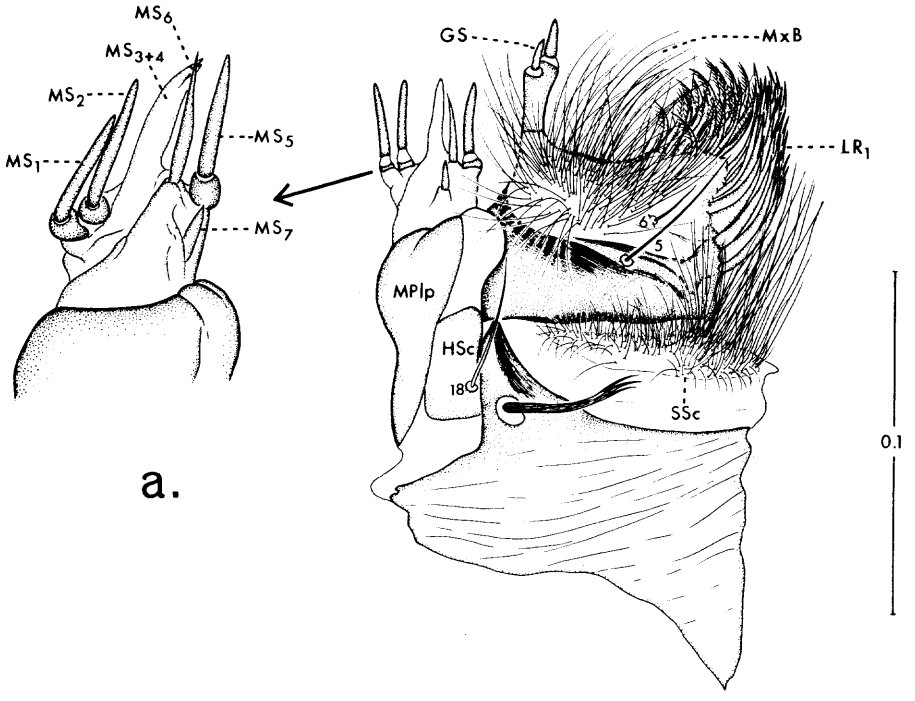

MS6
MS3+4
MS2
MS1
MS5
MS7
a.
GS
MxB
LR1
6
5
MPlp
HSc
18
SSc
0.1

Fig. 64

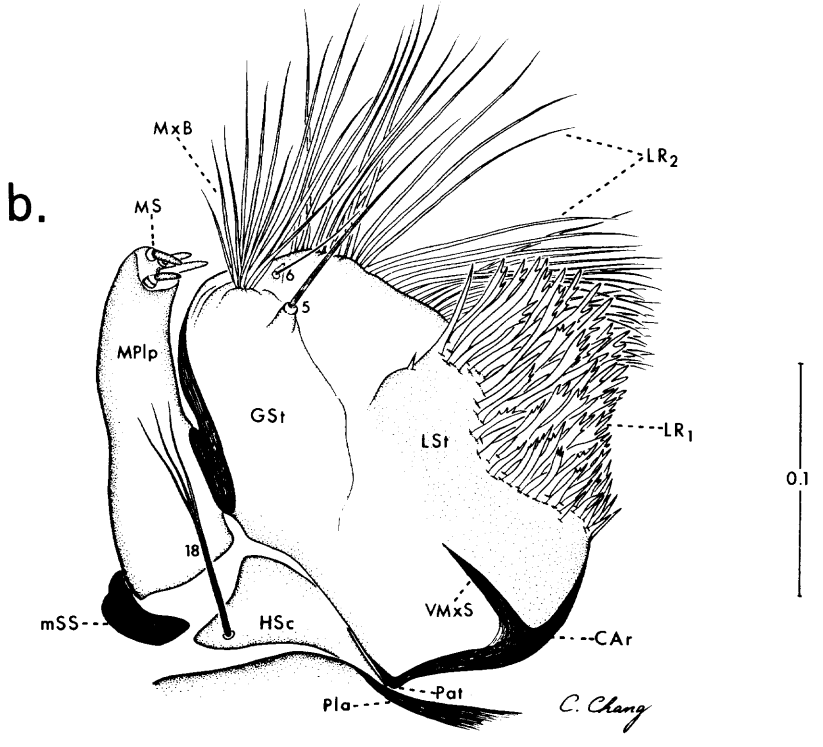

b.
MxB
LR2
MS
6
5
MPlp
GSt
LSt
LR1
0.1
18
mSS
HSc
VMxS
CAr
Pla
Pat
C. Chang

Fig. 65. *Armigeres (Armigeres) subalbatus* (Coquillett). Maxilla of fourth stage larva.

a. Ventral aspect of right maxilla.

b. Dorsal aspect of left maxilla

ABBREVIATIONS

3	-- seta 3-MP	LSE	-- laciniastipital expansion
5	-- seta 5-MP	MP1p	-- maxillary palpus
6	-- seta 6-MP	MS	-- maxillary palpal sensoria
18	-- seta 18-C	mSS	-- merostipital sclerite
CAr	-- cardostipital arm	MxB	-- maxillary brush
DMxS	-- dorsal maxillary suture	MxBo	-- maxillary body
GS	-- galeal sensorium	MxPA	-- maxillary pilose area
HR	-- hypostomal ridge	Pat	-- parartis
LR_1	-- laciniarastrum 1	Pla	-- paracoila
LR_2	-- laciniarastrum 2	PMxA	-- primary maxillary articulation
LR_3	-- laciniarastrum 3	VMxS	-- ventral maxillary suture

Fig. 65

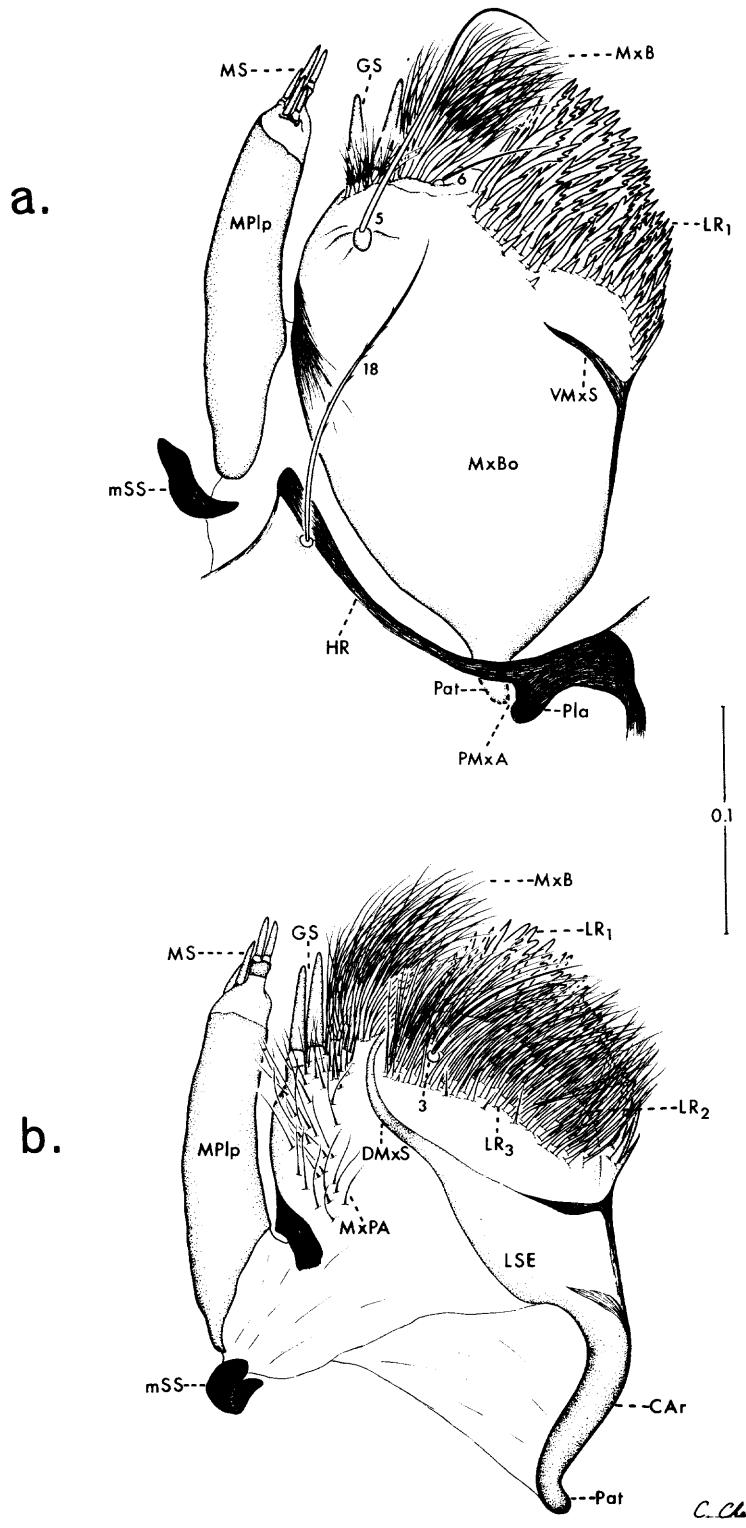

a.
MS
GS
MxB
6
5
MPlp
LR1
18
VMxS
MxBo
mSS
HR
Pat
Pla
PMxA
0.1
b.
MxB
MS
GS
LR1
3
LR2
MPlp
DMxS
LR3
MxPA
LSE
mSS
CAr
Pat
C. Chang

Fig. 66. *Opifex fuscus* Hutton. Maxilla of fourth stage larva.

a. Ventral aspect of left maxilla

b. Dorsal aspect of right maxilla.

ABBREVIATIONS

3 -- seta 3-MP

4 -- seta 4-MP

5 -- seta 5-MP

18 -- seta 18-C

BN -- basal notch

CAr -- cardostipital arm

DMxS -- dorsal maxillary suture

GS -- galeal sensoria (fused)

GSS -- galeastipital stem

GSt -- galeastipes

HSc -- hypostomal sclerite

HR -- hypostomal ridge

LR_1 -- laciniarastrum 1

LR_2 -- laciniarastrum 2

LR_3 -- laciniarastrum 3

LSE -- laciniastipital expansion

LSt -- laciniastipes

MP1p -- maxillary palpus

MS -- maxillary palpal sensoria

mSS -- merostipital sclerite

MxB -- maxillary brush

MxPA -- maxillary pilose area

Pat -- parartis

VMxS -- ventral maxillary suture

Fig. 66

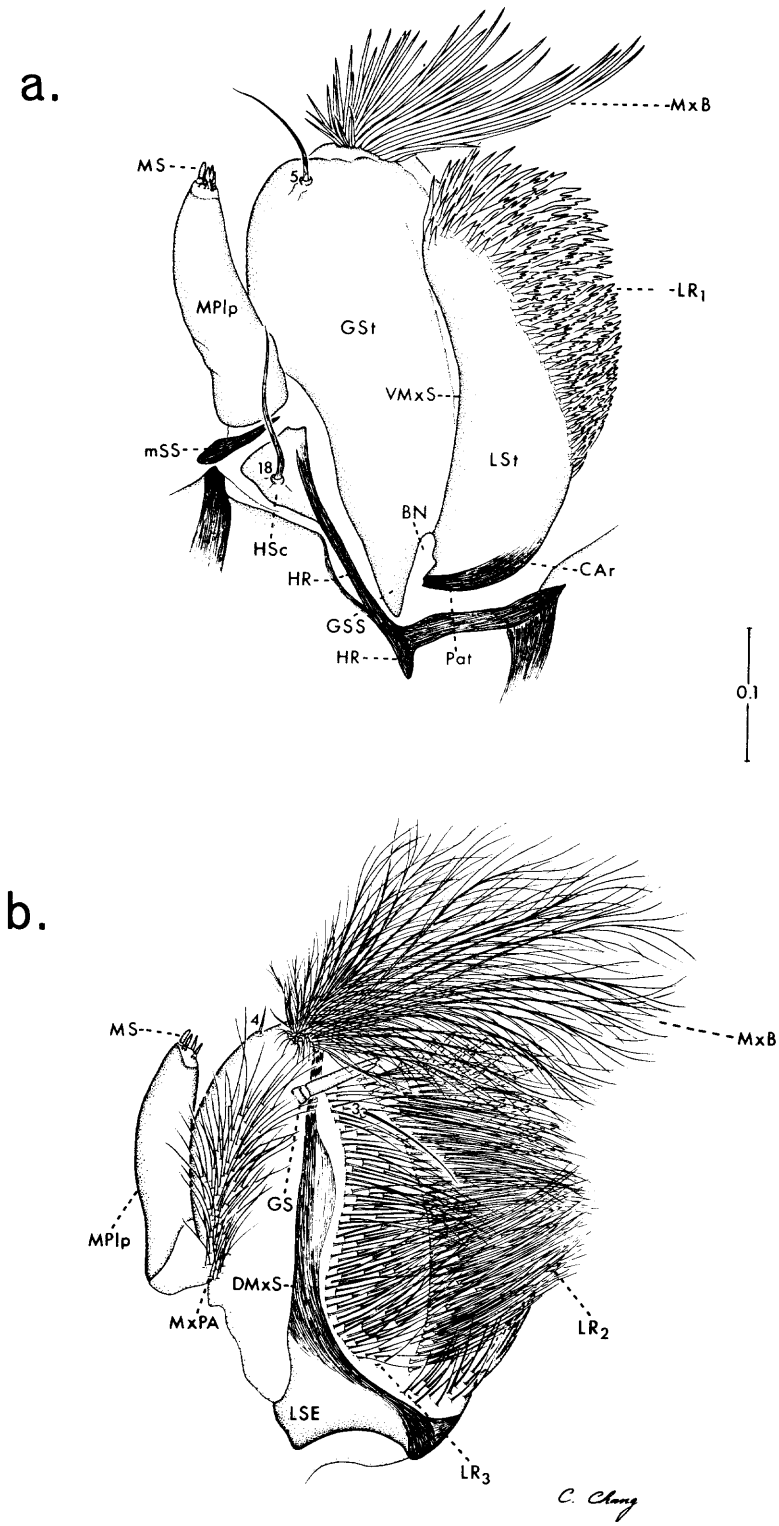

a.
MxB
MS
5
LR1
MPlp
GSt
VMxS
mSS
18
LSt
BN
HSc
CAr
HR
GSS
HR
Pat
0.1
b.
MS
4
MxB
3
GS
MPlp
DMxS
MxPA
LR2
LSE
LR3
C. Chang

Fig. 67. *Aedes (Ochlerotatus) taeniorhynchus* (Wiedemann). Maxilla of fourth stage larva.

a. Ventral aspect of right maxilla.

b. Dorsal aspect of left maxilla.

ABBREVIATIONS

3 -- seta 3-MP

4 -- seta 4-MP

5 -- seta 5-MP

6 -- seta 6-MP

18 -- seta 18-C

BN -- basal notch

CAr -- cardostipital arm

DMxS -- dorsal maxillary suture

GS -- galeal sensorium

GSS -- galeastipital stem

GSt -- galeastipes

HSc -- hypostomal sclerite

HR -- hypostomal ridge

LR_1 -- laciniarastrum 1

LR_2 -- laciniarastrum 2

LR_3 -- laciniarastrum 3

LSE -- laciniastipital expansion

LSt -- laciniastipes

MP1p -- maxillary palpus

MS_1 -- maxillary palpal sensorium 1

MS_2 -- maxillary palpal sensorium 2

MS_{3+4} -- maxillary palpal sensorium 3 + 4

MS_5 -- maxillary palpal sensorium 5

MS_6 -- maxillary palpal sensorium 6

MS_7 -- maxillary palpal sensorium 7

mSP -- merostipital process

MSpA -- maxillary spiculose area

MxB -- maxillary brush

MxPA -- maxillary pilose area

VMxS -- ventral maxillary suture

Fig. 67

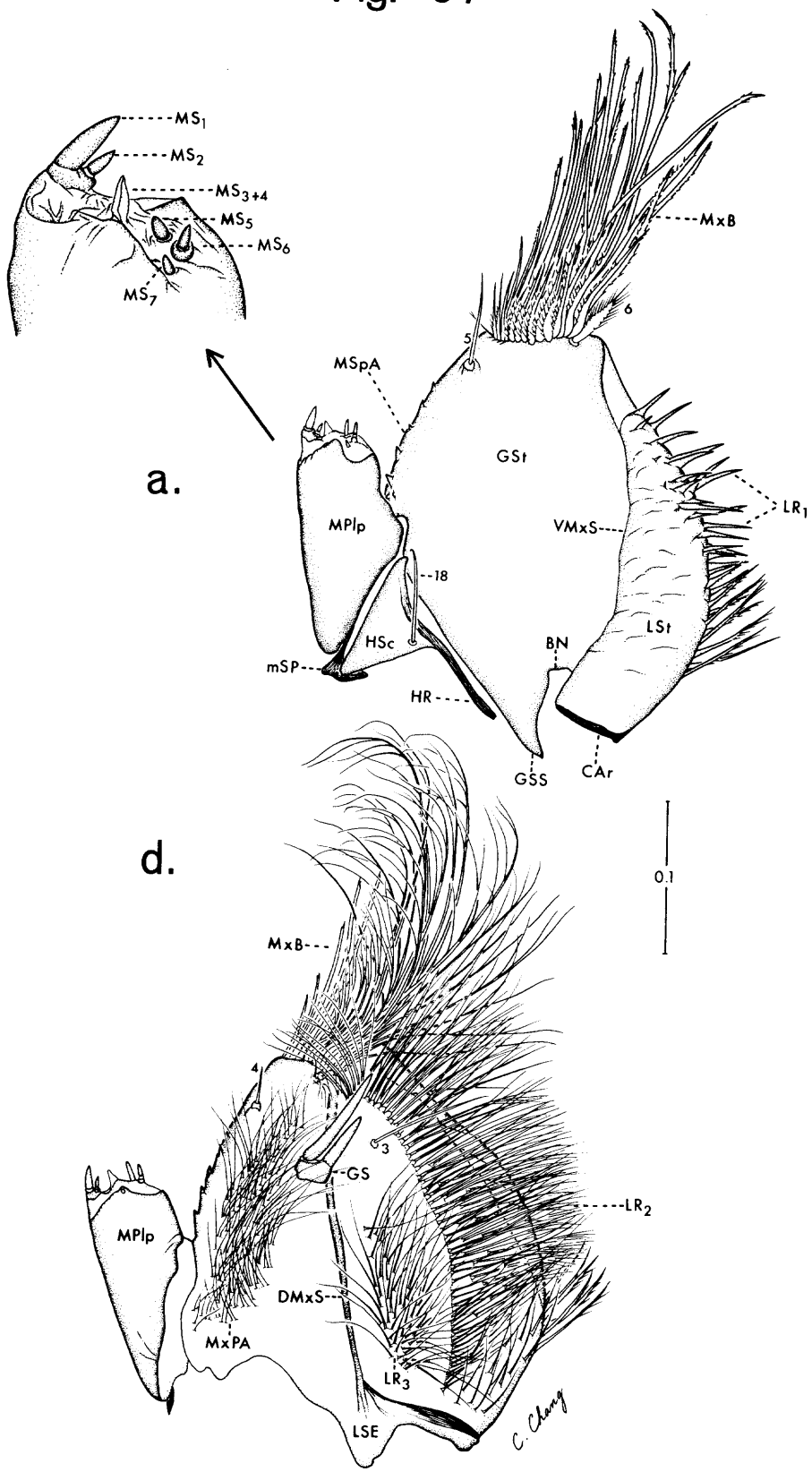

MS1
MS2
MS3+4
MS5
MS6
MS7
a.
MxB
6
5
MSpA
GSt
LR1
VMxS
MPlp
18
HSc
mSP
HR
BN
LSt
GSS
CAr
d.
0.1
MxB
4
3
GS
LR2
MPlp
DMxS
MxPA
LR3
LSE
C. Chang

Fig. 68. *Tripteroides (Tripteroides) nepenthis* (Edwards). Maxilla of fourth stage larva.

a. Ventral aspect of right maxilla.

b. Dorsal aspect of left maxilla.

ABBREVIATIONS

3 -- seta 3-MP

5 -- seta 5-MP

18 -- seta 18-C

GS -- galeal sensorium

HSc -- hypostomal sclerite

HR -- hypostomal ridge

LR_1 -- laciniarastrum 1

LR_2 -- laciniarastrum 2

LR_3 -- laciniarastrum 3

MPlp -- maxillary palpus

MS -- maxillary palpal sensoria

MxB -- maxillary brush

MxBo -- maxillary body

MxPA -- maxillary pilose area

Pat -- parartis

Pla -- paracoila (internal)

Fig. 68

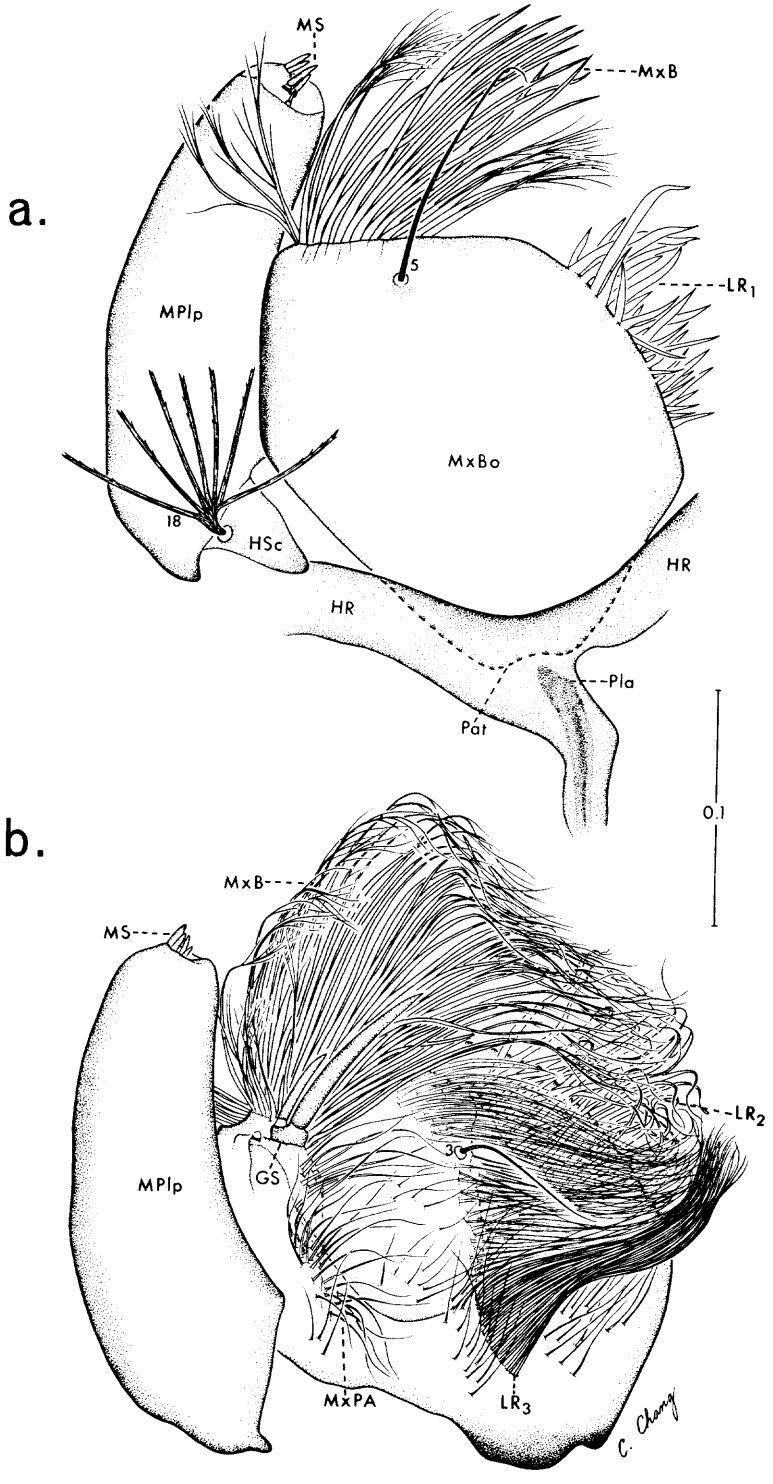

a.
MS
MxB
5
LR1
MPlp
MxBo
18
HSc
HR
HR
Pla
Pat
0.1
b.
MxB
MS
LR2
30
GS
MPlp
MxPA
LR3
C. Chang

Fig. 69. *Toxorhynchites (Toxorhynchites) brevipalpis* Theobald. Maxilla of fourth stage larva.

a. Ventral aspect of left maxilla.

b. Dorsal aspect of right maxilla.

ABBREVIATIONS

3 -- seta 3-MP

5 -- seta 5-MP

6 -- seta 6-MP

CAr -- cardostipital arm

DMxS -- dorsal maxillary suture

GS -- galeal sensorium

LR_1 -- laciniarastrum 1

LR_2 -- laciniarastrum 2

MP1p -- maxillary palpus

MPS -- maxillary palpal spiculi

MS_1 -- maxillary palpal sensorium 1

MS_2 -- maxillary palpal sensorium 2

MS_5 -- maxillary palpal sensorium 5

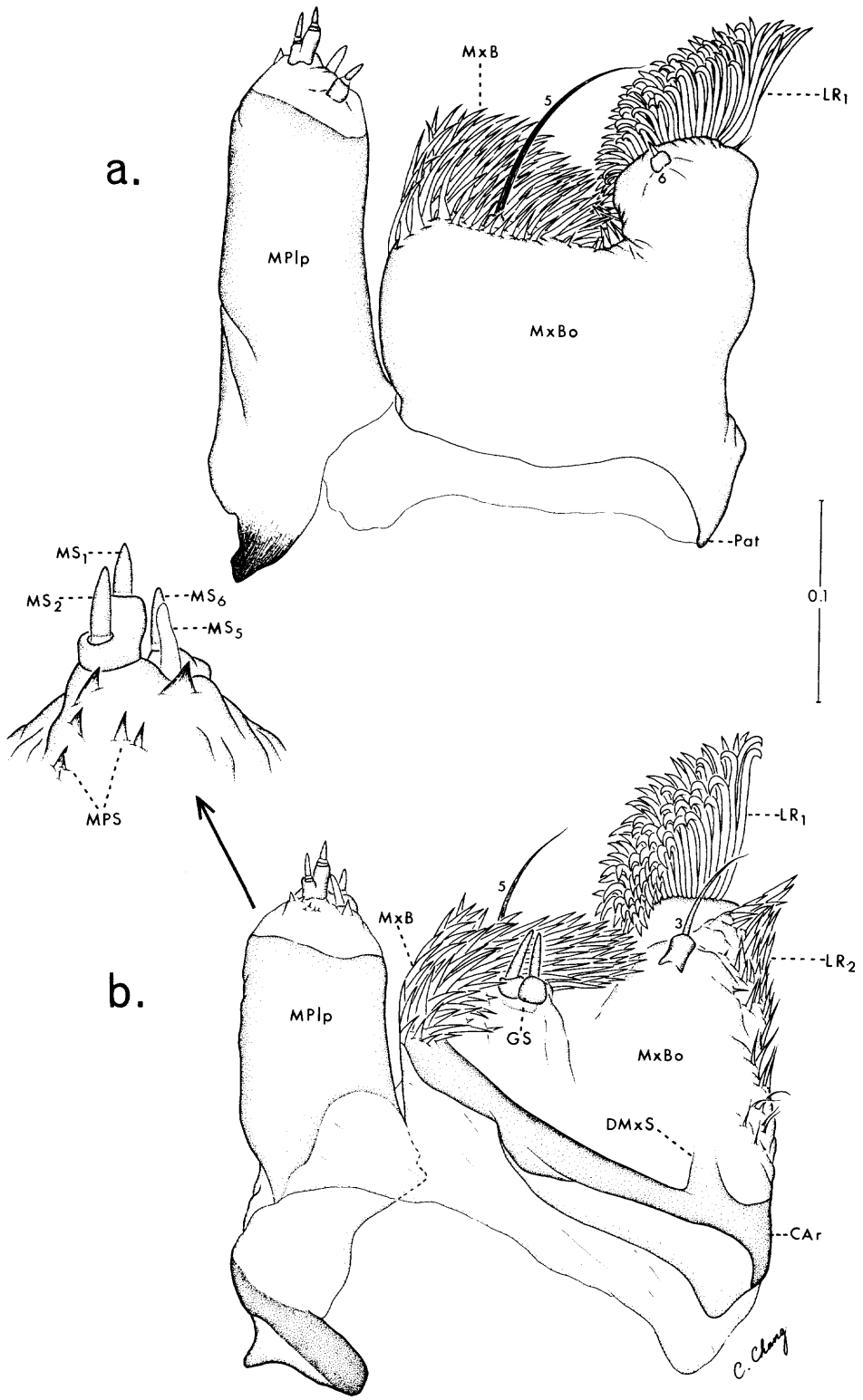
MS_6 -- maxillary palpal sensorium 6

MxB -- maxillary brush

MxBo -- maxillary body

Pat -- parartis

Fig. 69


a.
MxB
5
LR1
6
MPlp
MxBo
Pat
MS1
MS2
MS6
MS5
MPS
0.1
b.
LR1
5
MxB
3
LR2
MPlp
GS
MxBo
DMxS
CAr
C. Chang

APPENDIX

As previously, this part is appended for the purpose of explaining: 1) the introduction of new terms, 2) the recommendation of terms currently not widely accepted for use in the Culicidae, and 3) the derivation of terms where appropriate.

barb. -- Applied by Gardner *et al.* (1973, 169), who attributed it to Belkin (1962), to the tiny, sharp projections occurring on some of the maxillary brush setae in *Aedes communis* De Geer. These structures will be dealt with in Part XIV, the body vestiture.

GALEAL SENSORIUM. -- Yin (1970) showed that these are sensory structures which are innervated by a group of sense cells. That the structures are appendages of the galea has been implied and/or suggested by a number of mosquito morphologists, homologous structures in chironomid larvae have been referred to as "galear sensillae" (Mozley 1971, 299), and Lawson (1951, 518) suggested that those in a ceratopogonid larva, *Culicoides nubeculosus* Meigen, "represent the galea." Homologous structures also occur in anisopodid and simuliid larvae as shown in the drawings of Anthon (1943b, Fig. 5) and Chance (1970, Fig. 48), respectively. (See SENSORIUM in this section for additional comments.)

HYPOSTOMAL SCLERITE. -- This structure has most frequently been labelled as the "palpifer." We feel, however, that it cannot represent the palpifer since a remnant of the stipes occurs between the structure and the maxillary palpus in dixid and many culicine larvae (see MAXILLA in this section). Knowing this, the structure might be thought to represent the cardo, yet we feel that the rod-like structure which articulates mesally with the maxilla proper and the paracoila in dixid and anopheline larvae is more likely to be homologous with the cardo of generalized insects. For these reasons, we prefer to think of the structure as a fragment of the cranium; specifically as a part of the lateralia which bears the hypostomal ridge. Belkin (1962, 559) stated that the sclerite "appears to be part of the head capsule" and our SEM studies have shown, particularly in dixid larvae, that it is more closely associated with the head than with the base of the maxilla. In some culicid larvae, e.g., *Aedes aegypti* (L.) and *A. seatoi* Huang, the structure is clearly a part of the head in first instars and a separate sclerite in later instars (Harrison and Rattanarithikul 1973). The structure appears to have been retained as part of the lateralia in toxorhynchitine and some culicine larvae, e.g., *Armigeres*.

Das (1937, 57) asserted that "the maxilla in larval Diptera has a rod-shaped cardo articulating with the hypostoma...." In many nematocerous larvae, this rod-shaped sclerite is located between the maxilla proper and the ventral margin of the cranium. As was pointed out by de Meijere (1917) and is apparent in the figures of authors (e.g., Anthon 1943a; Cook 1949), this sclerite typically bears 3 setae which appear as though they could be homologous with setae 14-, 15-, and 18-C of mosquito larvae. It is possible, therefore, that the "cardo" of other larval Nematocera is homologous with a portion of the larval culicid cranium including our hypostomal sclerite.

LACINIARASTRA. -- MacGillivray (1923, 100) defined a "rastra" as a "row of long or short setae, usually arranged like the teeth of a rake..." and referred to a corresponding structure on the margin of the lacinia as the "laciniarastra." According to Brown (1956, 648), however, "rastrum" is the singular Latin form. We therefore use laciniarastra, the pleural form, in reference to all of the rows of setae occurring on the lacinia and refer to each row as a laciniarastrum. This term, newly applied here to culicid larvae, is shorter than its many synonyms.

MAXILLA. -- Almost all of our names for the variously distinguishable parts of the larval culicid maxilla are new. The following is an abbreviated explanation of how the names were derived.

Located mesally below the base of the maxilla in dixid and anopheline larvae is an inward projection of the head which we believe is homologous with the paracoila of generalized insects. Normally articulated with the paracoila is the cardo; therefore we agree with Menees (1958) that the cuticular rod of anophelines and dixids represents the CARDO. Distally the cardo should articulate with the stipes. In anophelines and dixids the CARDO articulates with the ventral end of an apodematous ridge, the STIPITAL ARM, located along the mesobasal edge of the maxilla proper. In culicine and toxorhynchitine larvae the CARDO is absent, but in many culicines the apodematous ridge is well developed. In some culicines, e. g., *Armigeres*, the ridge articulates with a distinct paracoila. Based on the belief that this ridge in culicines represents the fused CARDO and STIPITAL ARM of dixids and anophelines, it has been designated the CARDOSTIPITAL ARM. Additional support for the idea that the STIPITAL and CARDOSTIPITAL ARMS represent a part of the stipes comes from the muscle which is normally inserted on their dorsal ends. This muscle has its origin on the posterior tentorial arm in larval *Armigeres* (Cook 1944), *Eretmapodites*, and *Zeugnomyia*, perhaps others as well, and is "very evidently one of the stipital muscles" (Cook 1944), probably the stipital adductor.

Culicidologists generally agree that the cylindrical lobe borne lateral to the main body of the maxilla represents a reduced MAXILLARY PALPUS. In dixid larvae, the palpus is borne on a lateral extension of the main part of the maxilla. We believe that the extension represents a lateral part of the stipes and refer to it as the MEROSTIPES, the prefix "mero" being derived from the Greek "*meros*" meaning part of portion (Brown 1956, 862). The MEROSTIPES articulates with the base and/or postartis of the mandible (see SECONDARY MAXILLARY ARTICULATION in this section for additional evidence that the stipes forms this articulation). In many culicine larvae, a small, previously unnamed sclerite located below the base of the palpus also articulates with the mandible. Since this structure appears to be homologous with the MEROSTIPES, we have named it the MEROSTIPITAL SCLERITE. Similarly, a previously named structure, a small band of cuticle which also articulates with the mandible but is attached directly to the base of the palpus in other culicines has been renamed the MEROSTIPITAL PROCESS. The MEROSTIPES appears to have been completely incorporated into the maxillary palpus in anopheline, toxorhynchitine, and some other culicine larvae, but for simplicity we prefer to call the entire complex in these cases the MAXILLARY PALPUS.

In many culicine larvae, the main part of the maxilla has distinct lateral and mesal lobes which most recent authors believe represent, at least in part, the galea and lacinia, respectively. These are demarcated dorsally by a thickened band of cuticle, the DORSAL MAXILLARY SUTURE, and ventrally by a groove and/or a line of slightly thickened cuticle, the VENTRAL MAXILLARY SUTURE. Since the mesal lobe has a muscle inserted dorsally which is believed to be the cranial flexor of the lacinia, rows of setae not unlike those borne on the lacinia of generalized insects, and bears the STIPITAL or CARDOSTIPITAL ARM basally, we believe that it represents the fused lacinia and stipes, the LACINIASTIPES. In dixids, that portion of the main body corresponding to the lateral lobe is separated from the MEROSTIPES by a wedge of translucent cuticle referred to as the GALEASTIPITAL FISSURE because it has the appearance of a narrow gap in the light microscope. This indicates that the lateral lobe of the culicine maxilla represents the fused galea and stipes, the GALEASTIPES. In those larvae where a GALEASTIPES and LACINIASTIPES cannot be distinguished, we prefer to call the main part of the maxilla simply the MAXILLARY BODY, a term first mentioned by Gardner *et al.* (1973, 167).

In light of the above, we feel that the terms BASAL NOTCH, GALEALSTIPITAL STEM, and LACINIASTIPITAL EXPANSION need no clarification other than what has already been given in their definitions.

MAXILLARY BRUSH. -- Apparently first used for culicid larvae by Shalaby (1957a, 155) and currently accepted by culicidologists, we prefer this term to its many synonyms primarily because it indicates the location of the structure. It is somewhat objectionable to us, however, because the word "brush" indicates that the structure has the same function in all culicid larvae although it has a different function in predaceous species. For simplicity we endorse the use of the term for all culicid and dixid larvae.

MAXILLARY PALPAL SENSORIUM. -- Shalaby (1956, 153) first applied the term "sensoria" to these structures in culicid larvae. We have employed the adjectives "maxillary palpal" to indicate their position on the maxillary palpus.

Yin (1970) demonstrated that at least one dendrite innervates and extends to the tip of each of these structures in several culicine species. We could have chosen to call the structures "sensilla" but a "sensillum" was defined by Snodgrass (1935, 514) as a "receptor complex formed of the cuticula, the sense cell or group of sense cells, and the associated chitinogenous cells...." It should be noted that these cuticular structures are not by themselves sensilla (see SENSORIUM in this section for additional comments).

It should be admitted that the homologies of the maxillary palpal sensoria are somewhat tentative. They are presently based on similarities between anopheline and *Uranotaenia* species. If the maxillary palpus of certain anophelines is rotated so that the dorsal pair of sensoria (MS_1; MS_2) lie laterally, the positions of the structures more or less correspond to the positions of those in *Uranotaenia* species. An additional twisting of the palpus and a fusion of the centrally located sensoria, which appears to have taken place in *Uranotaenia*, would account for the observed positions of the structures. The sensoria of *Uranotaenia* species are easily homologized with those of most other culicines and toxorhynchitines.

Homologous structures located at the apex of the maxillary palpus of a number of nematocerous larvae have been variously termed "papillae" (Mundy 1909, 178), "sensory papillae" (Chance 1970, 258), "sensilli basiconici" (Couvert 1970, 178), "sensillae" (Mozley 1970, 441), and "palpal sensillae" (Mozley 1971, 300). The "bisensillum" of Strenzke (1960, 17) is homologous with maxillary palpal sensoria 1 and 2.

PARARTIS. -- Yuasa (1920, 265) introduced this term in a study on orthopteroids and MacGillivray (1923, 98) applied it to many insects. As these authors have shown, the structure is often bifurcate, forming the exoparartis and entoparartis, but this does not appear to be the case in adult tabanids (MacGillivray 1923, 106) or larval culicids. Therefore, those structures which have been labelled as the exoparartis and entoparartis (see glossary entries) by culicid morphologists do not appear to be homologous with what we believe is the true parartis. It should be noted, however, that in some culicine larvae the galeastipital stem is more closely articulated with the head than is the true parartis.

PRIMARY MAXILLARY ARTICULATION. -- We introduce this term for the point where the parartis of the maxilla and the paracoila, a cranial structure, come into contact in order to distinguish it from the point of articulation which later evolved between the maxilla and mandible in many larval Diptera.

SECONDARY MAXILLARY ARTICULATION. -- We apply this term to the previously unnamed point of contact between a part of the stipes and the base of the mandible which evolved secondary to the point of articulation between the parartis of the maxilla and paracoila of the cranium. In support of the idea that it is the stipes which is articulated with the mandible, Schremmer (1951, 348) found that "der Stipes ist wahrscheinlich in die basalen Abschnitte [of the mandible], [mandibular] Gelenk und [maxillary] Palpusbasis, eingegangen" of larval Brachycera.

SENSORIUM. -- MacGillivray (1923, 76) defined "sensoria" as "the ectal parts of sense organs." It should be noted that Snodgrass (1935, 60) made it perfectly clear that the term "sense organ" also only applies to an external process of the body wall when he said, "the body wall in the immediate neighborhood of a sensitive cell, or group of such cells, is usually modified to form a more efficient receptor apparatus, designed to admit some particular kind of impinging stimulus, or a certain group of stimuli; and these special receptors constitute the so-called *sense organs* of the animal." In part X (Harbach and Knight 1977) it was our intent to refer to the cuticular parts of sensilla as "sense organs" and to note their appearance by using modifiers such as "peg," "hair," etc., e.g., mandibular peg organ (33). However, since MacGillivray's definition of a "sensorium" is the same as Snodgrass' definition of a "sense organ," we prefer to give priority to the former. The term is shorter and has been applied previously to the Culicidae. The origin of the term is unknown to us, but Smith (1906, 122), defined sensoria as "the circular openings covered by a membrane, on the antennae or legs of plant lice." These openings probably represent the external cuticular parts of sensilla.

Many of the setae borne on the bodies of mosquitoes are innervated. These are, therefore, "setal sensoria," but for convenience, and because of their taxonomic importance, we prefer to distinguish these "sensoria" by simply referring to each as a "SETA" and giving it a number followed by a hyphen and a capital letter or a Roman numeral indicating the body area on which it is located, a practice established by Belkin (1962). The structural types of sensoria will be dealt with in Part XIV, the body vestiture.

SETA. -- As pointed out in Part X (Harbach and Knight 1977, 50), a "seta" was defined by Snodgrass (1935, 69) as "a hairlike unicellular external process of the body wall of any derivative of the latter." All of those glossary entries which were referenced for this comment represent terms applied to various forms or types of setae. The many setal types will be defined and illustrated in Part XIV, the body vestiture.

SETA 18-C. -- With the belief that the former "palpifer" is actually a part of the cranium, the hypostomal sclerite, what was originally called "seta 6-MP," a mouthpart seta, has been reclassified as seta 18-C, a cranial seta.

SETA 6-MP. -- This seta was formerly called "seta 7-MP." With the reclassification of "seta 6-MP," now seta 18-C (see above), this seta now replaces 18-C as the new seta 6-MP.

SETA 7-MP. -- This seta was formerly designated "seta 8-MP." With the redesignation of the former 7-MP, now seta 6-MP (see above), this seta has become the new seta 7-MP.

Based on the belief that a portion of the stipes has been incorporated into the maxillary palpus of anophelines, this seta in anophelines appears to be homologous with the seta borne laterally on the lateral part of the stipes, the merostipes, of dixids. It should be added that a seta which is only sometimes present on the maxillary palpus of *Uranotaenia lagunensis* Baisas and is usually present on the maxillary palpus of *Mimomyia chamberlaini* Ludlow occupies a lower position than does that in anopheline species.

SUBMAXILLARY SCLERITE. -- This term is proposed for a previously undescribed structure.

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Note added in proof. Since the submission of this paper, it has come to our attention that Hochman and Reinert (1974) have proposed the names 18- and 19-C for a pair of previously unnamed setae occurring on the larval cervical membrane. In light of this, we are changing our designation of the seta borne on the hypostomal sclerite from seta 18-C to SETA 20-C.

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